



City of Rialto Urban Water Management Plan

February 2006

CITY OF RIALTO

URBAN WATER MANAGEMENT PLAN

FEBRUARY, 2006

Prepared For:

CITY OF RIALTO
DEPARTMENT OF PUBLIC WORKS
335 West Rialto Avenue
Rialto, CA 92376

Prepared By:

JOHN EGAN AND ASSOCIATES, INC.
1820 Commercenter Circle
San Bernardino, CA 92408
(909) 890-1255

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SECTION ONE

AGENCY COORDINATION

1.1 Introduction

The purpose of this report is to provide an Urban Water Management Plan (UWMP) for the City of Rialto (the City), as required by State Assembly Bill No. 797-Klehs. This UWMP includes a brief description of the City's water system, develops information on water use and current water conservation measures, describes water system deficiencies, analyzes future projections of water supply needs, as well as alternate conservation measures, and includes their implementation schedules. The Plan is an update to the 2003 UWMP prepared for the City by Engineering Resources of Southern California, Inc.

The City staff has reviewed this Plan and, based on their recommendations, the UWMP will be adopted by the City Council following a public hearing where testimony will be taken and the Plan modified, if necessary. The UWMP then becomes the guideline for water conservation within the City's water system, requiring upgrading at least every five (5) years.

1.2 Background

The California State Legislature passed the Urban Water Management Planning Act (AB 797, California Water Code, Division 6, Part 2.6, Section 10610-10657), which was signed into law by Governor Deukmejian on September 21, 1983. The State Water Code was further amended by Assembly Bill 2661, approved by the Governor on July 18, 1990 as it relates to urban water conservation. The Bill requires urban water suppliers providing water for municipal purposes to more than 3,000 customers or supply more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP. The City of Rialto falls under both definitions.

The Legislature enacted two (2) measures that modified the Act in 1991. The first measure requires water suppliers to include an urban water shortage contingency analysis as part of its UWMP (AB 11). This measure also exempts the implementation of urban water shortage contingency plans from California Environmental Quality Act (CEQA). The second measure requires an UWMP to describe and evaluate water recycling activities, to be updated once every five (5) years, to include an estimate of projected potable and recycled water use, and to describe activities relating to water audits and incentives (AB 1869).

In 1993, the Legislature enacted a measure, which allows members of the California Urban Water Conservation Council (CUWCC) to submit to the State a copy of their annual report to the Council to satisfy current reporting requirements relating to UWMPs (AB 892).

The Legislature enacted additional measures in 1994. The first measure, Senate Bill (SB) 1017,

authorizes an urban water supplier to recover the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. The second measure requires water suppliers to give greater consideration to recycled water in their UWMPs (AB 2853).

In 1995, the Legislature enacted two (2) additional measures. The first measure requires urban water suppliers to include, as part of their UWMP, a prescribed water supply and demand assessment of the reliability of their water service to their customers during normal, dry, and multiple dry water years (AB 1845). The assessment shall compare total water supply sources available to the supplier with the total projected water use over the next 20 years, in 5-year increments. The second measure makes the following changes to the Urban Water Management Plan Act (SB 1011):

- Requires urban water suppliers to update their plans at least once every five (5) years on or before December 31 in the years ending in 5 and 0. Requires urban water suppliers to include a prescribed water supply and demand assessment.
- Requires suppliers to encourage active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during preparation of the plan.
- Prior to adopting the plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing.
- Exempts suppliers who are implementing a conservation program from conducting a cost-benefit analysis of those conservation programs.
- Requires the Department of Water Resources to submit a report to the Legislature summarizing the status of plans on or before December 31 in the years ending in 1 and 6.

In 2001, the Legislature enacted AB 901 and SB 610. The first measure incorporates changes in Section 10631 of the Water Code (AB 901) and the second measure requires additional information to be included as part of the UWMP if groundwater is identified as a source of water (SB 610).

1.3 Scope of Work

In preparing the proposed plan, the following scope of work was developed utilizing guidelines provided by the California Department of Water Resources.

1. Provide a brief summary and map describing the City's water system, including sources, facilities, and operations.
2. From available records, prepare a brief summary of historical, current and projected water use in terms of annual consumption. For the current year of record, estimate the percentage of use from various categories such as residential, industrial, commercial, etc.
3. Identify and describe the existing and planned sources of water available along with a description of the groundwater basins and the City's adjudicated pumping rights.
4. Discuss the reliability of the planned water sources and their vulnerability to seasonal, climatic shortage, and water quality.
5. Assess the water supply reliability and compare the total water supply sources available versus the projected future demands within the system.
6. Describe conservation measures currently in use by the City, how they are practiced and their success. Both structural measures such as meters and retrofit devices, and non-structural methods such as rates and public information programs, are to be described and their effectiveness analyzed.
7. For those conservation measures not currently practiced by the City, prepare an analysis of the potential for improved efficiency of water use if alternative conservation measures were adopted. In the analysis, address the potential costs and other significant economic, environmental, social, health, and technological impacts, as appropriate.
8. Develop a history and description of the City's supply deficiencies, if any. This description should include the available source(s), capacity, their production, frequency of problem, actions taken, and plans for development of new sources.
9. If a future expansion of water supplies is needed, identify the projected amount of additional water supply and sources necessary to operate the water system without deficiencies.

1.4 Organization

The City of Rialto is a public agency of the State of California, organized and existing under the County Water District Law (Division 12, Section 30,000 of the Water Code) of the State of California. Among other typical political subdivision powers, it has the power of taxation and eminent domain.

1.5 Location

The City of Rialto is located in southwestern San Bernardino County. The City is adjacent to the western limits of the Cities of San Bernardino and Colton, the eastern limits of the City of Fontana, the U.S. Forest Service to the north, and the County of Riverside on the south.

1.6 History

The area of Rialto was first settled in 1854, when families began moving to the area and started vineyards, citrus groves, and ranches. In 1887, the Santa Fe Railroad built a rail line through the area of Rialto that connected Pasadena to San Bernardino, and a town site was formed. During the years that followed, the City acquired stock ownership and water rights in the Citizens Land and Water company, the Lytle Creek Water and Improvement Company, Rialto Domestic Water Company, Rancheria Water Company and the Mutual Water Company.

The City of Rialto was incorporated in 1911 and had a population of over 1500. The City changed from a small agricultural town to a suburban community in the 1950's when the post World War II boom exploded the population from 3,156 in 1950 to 23,000 in 1960. Today the City of Rialto's population is over 95,000.

1.7 Update in General

The chemical Perchlorate, which is used in the manufacture of rocket fuels and propellants has been detected in several of the City's groundwater wells. Perchlorate is highly soluble in water and is believed to have potential effects on human health.

The City believes that the primary source of the perchlorate discharge comes from operations by polluters over the last 50 years. These polluters have created a plume of perchlorate beneath the City, which is believed to be over six (6) miles long. The existence of perchlorate in groundwater has forced the City to close many of their municipal drinking water wells. The contamination, coupled with the local drought, has severely impacted the amount of water available to the City, which has had to lease or purchase replacement water from others.

The region has been experiencing a drought that started in 1999 and continued until late 2004 causing water levels in the groundwater basins to decline. During the past winter above average rainfall has partially recharged the Basins.

1.8 Data Sources

Frequent references and information used to compile this report have been obtained from data provided by the City as well as the following:

Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan, January 18, 2005, prepared by the *California Department of Water Resources*.

Resolution 5074 - Establishing New Water Rules and Regulations, adopted March 2, 2004, City of Rialto.

Ordinance 1130 - Amending Chapter 12.20 of the Rialto Municipal Code, adopted December 18, 1990, City of Rialto.

Ordinance 1133 - Adding a new chapter 12.50 and new section 17.44.020 to the Rialto Municipal Code pertaining to the establishment of Water Efficient Landscape Requirements, adopted January 15, 1991, City of Rialto.

The City of Rialto's Water Master Plan, March 2001, prepared by *Engineering Resources of Southern California, Inc.*

Water System Evaluation, April 2003, prepared by *Engineering Resources of Southern California, Inc.*

Water Financial Plan and Rate Study, January 2003, prepared by *Engineering Resources of Southern California, Inc.*

City of Rialto Urban Water Management Plan and Water Shortage Contingency Plan Update,
March 19,
1996, prepared
by J.F.
Davidson
Associates,
Inc.

Engineers Report for the Production, Distribution and Use of Recycled Water for the City of Rialto, April 2002, prepared by *Engineering Resources of Southern California, Inc.*

City of Rialto Urban Water Management Plan and Water Shortage Contingency Plan, September 2003, prepared by *Engineering Resources of Southern California, Inc.*

1.9 Agency Coordination

The City is a member of, has participated in, or works in conjunction with the following :

Lytle Creek Water Conservation Association - A 1924 judgment allocated all water rights in the Lytle Creek Region to the various user agencies.

Upper Santa Ana Water Resources Association (USAWRA) - An association of all the public retail water purveyor that pump out of the Bunker Hill Basin.

San Bernardino Valley Municipal Water District (SBVMWD) - SBVMWD covers a service area of about 325 square miles, contains a population of approximately 600,000 and is a State Water Contractor (SWC) with an annual allocation of State Project Water (SPW) of 102,600 acre-feet. SBVMWD in conjunction with many of the retail water agencies within its boundary recently received a grant through Proposition 50 to create an Integrated Regional Groundwater Management Plan (IRGMP). The IRGMP will provide coordination between all of the existing planning documents and legal documents within their district which govern the management of groundwater and surface water.

Rialto Basin Management Association - A 1961 decree allocated the groundwater in the Rialto Basin which supplies north San Bernardino, the Cities of Colton, Fontana, and Rialto.

Emergency Connections -The Fontana Water Company, the Riverside Highland Water Company, the Cities of Colton and San Bernardino, as well as SBVMWD and WVWD, have mutual aid agreements with the City to provide water under emergency conditions.

SECTION TWO

CONTENTS OF URBAN WATER MANAGEMENT PLAN

2.1 Appropriate Level of Planning for size of Agency

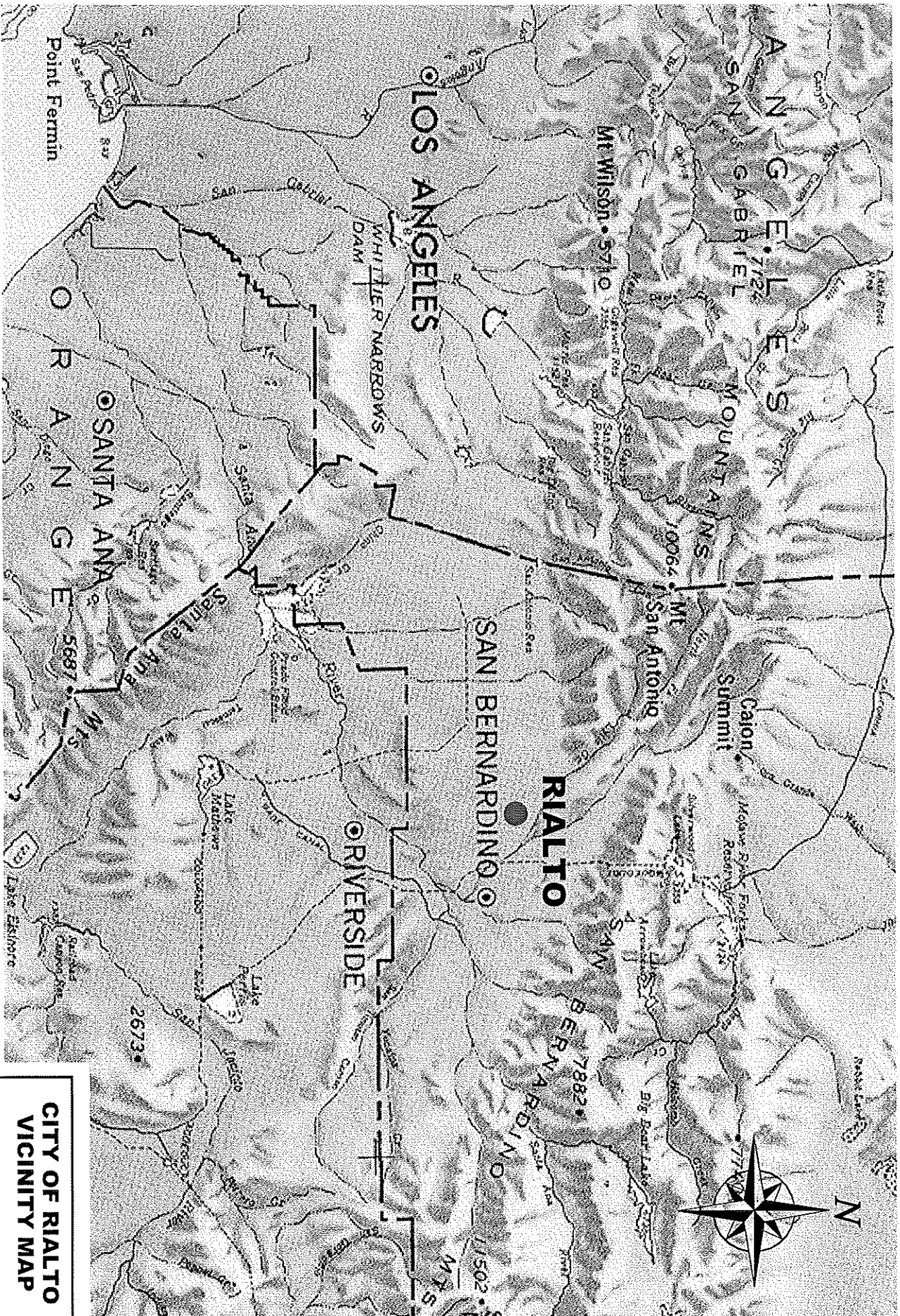
The City is part of the greater San Bernardino-Riverside-Ontario metropolitan area and is located fifty miles east of downtown Los Angeles. It is situated in an interior valley of Southern California known as the San Bernardino Valley and within the Santa Ana River Basin Watershed. Lands within the City have a gentle upward slope to the north with the foothills of the San Gabriel mountains and the San Bernardino National Forest providing its northern boundary. The general vicinity of the City is shown graphically in Figure 1.

Geographically, the City sits at the base of the San Bernardino mountains and at the leading edge of an alluvial fan created for the most part by the Lytle Creek wash area, which is the principal drainage area and the reason for the specific type of soils. The soils are primarily Class III soils which are very conductive, with irrigation, to supporting almost all types of agricultural activities. The topography ranges from a low of 1,120 feet to a high of 1,520 feet above sea level.

In 2004 the City of Rialto's Water Department provided potable water to 11,897 domestic, commercial, institutional and irrigation users who total an estimated 48,418 people. The City is located in the westerly portion of San Bernardino County. The City of Rialto's service area encompasses approximately 8.5 square miles and supplies water to the central portion of the City. The remainder of the City of Rialto's population, north of Baseline and south of the I-10 Freeway, receives water from the West Valley Water District (WVWD).

The majority of the City's service area lies within the boundaries of the SBVMWD. The SBVMWD is one of many agencies contracting with the State of California Department of Water Resources, to receive Northern California Water as a part of the California Water Plan.

Residential water use in the City is 103 gallons per capita per day, which translates into a total average daily demand of 6.3 million gallons. Commercial, industrial and agricultural users consume an additional 4.08 million gallons per day (mgd). The City is also obligated by contract, to deliver to Marygold Mutual Water Company a maximum of 1,500 gallons per minute (gpm).



**CITY OF RIALTO
VICINITY MAP**

2.1.1 Distribution System

The City's distribution system consists of six (6) pressure zones, Zones 1A, 1B, 1C, 2, 3A and 3B which are separated by pressure reducing valves, booster pump stations, and normally closed valves. The system consists of over 162 miles of pipeline varying in size from 2-inch to 48-inch in diameter. There are various pipeline materials within the system, including asbestos cement, Polyvinyl Chloride C900, concrete mortar lined and coated steel. The majority of the existing pipelines are between 6 inches and 12 inches in diameter. The overall system is believed to be in relatively good condition, sufficient to convey water for the existing demands.

2.1.2 Reservoirs

The City has a total of five (5) reservoirs, all of which are above ground prestressed concrete structures. Together, they have a total storage capacity of 28 million gallons as shown in Table 2-1.

The Cedar Reservoir Complex has two (2) 6.0 million gallon reservoirs with a high water level of 1,565 feet above mean sea level (msl) which supplies Pressure Zone 1-A. Water from these reservoirs also serve Pressure Zones 1-B, and 1-C. Pressure Zone 1-B is served by two (2) pressure reducing stations from Pressure Zone 1-A and has a high water level of 1,465 feet above msl. Pressure Zone 1-C is served by two (2) pressure reducing stations from Pressure Zone 1-A and has a high water level of 1,500 feet above msl.

The Highland/Easton Reservoir Complex has two (2) 5.0 million gallon reservoirs with high water levels of 1,417 feet above msl that supplies water to Pressure Zone 2.

The Baseline Reservoir System has one (1) 6.0 million gallon reservoir (Cactus Reservoir) with a high water level of 1,370 feet above msl for Pressure Zone 3-A. The Cactus Reservoir also serves Pressure Zone 3-B through four (4) pressure reducing stations from Pressure Zone 3-A and has a high water level of 1,270 feet above msl.

**Table 2-1
Reservoir Information**

Location	Volume (mg)	Zone Served	Dia. (feet)	Shell Height (feet)	Bottom Elev. (feet)	High Water Level (feet)	Type
Cedar #1	6.0	1A,B&C	186	30	1,535.5	1,565	Concrete
Cedar #2	6.0	1A,B&C	186	30	1,535.5	1,565	Concrete
Highland	5.0	2	174	28	1,389	1,417	Concrete
Easton	5.0	2	174	28	1,389	1,417	Concrete
Cactus	6.0	3A&B	215	24	1,348	1,370	Concrete

2.1.3 Well Supply

In the past few years the City of Rialto has experienced a sharp curtailment of its available ground water supply. This reduction has resulted from two (2) primary factors, declining ground water levels caused by the continuation of drought conditions, and contamination of seven (7) of the City's 14 available wells by perchlorate.

Due to contamination of the groundwater by plumes of perchlorate, production at five (5) wells within the Rialto Basin has ceased. Two (2) other wells, one (1) in the Chino Basin (Chino #1) and one (1) in the North Riverside Basin (Chino #2), have been equipped with well head treatment. In addition to the water contamination, the City has two (2) wells located within the Lytle Creek Groundwater Basin whose production capacity can be reduced by as much as 35% (City #3) or suspended during a drought (City #1).

The seven (7) operational wells range in capacity from 840 gpm to 3,234 gpm with a total production capacity of 13,108 gpm or 18.9 mgd. Well head treatment is installed on Rialto Well #3 but is waiting for clearance from the Department of Health Services before it can be placed back into service. This well can produce 1,668 gpm and would boost the City's capacity to 21.3 mgd.

Each well pump is driven by an electric motor. Some of the wells deliver directly into the distribution system while the remaining wells pump into stilling reservoirs. Well operation is automatically controlled by a centralized telemetry system, which monitors reservoir levels, and time of use energy schedules determined by Southern California Edison Company. In order to economize on cost, the City operates the various well pumps on a "time of use" (TOU) basis, pumping 16 hours each day, and using the storage provided by the reservoirs plus imported water to provide service during periods of high power rates when possible.

Within the system there are a dozen booster pumps which transfer water to the various zones. More specifically, from Zone 2 to Zone 1 and from Zone 3 to Zone 1, and bypass valves that allow water to move from Zone 1 to Zones 2 and 3.

2.1.4 Oliver P. Roemer Water Filtration Facility

The City utilized an average of 0.95 mgd of water from the Water Filtration Facility (WFF) during 2004. This WFF is owned and operated by the WVWD, and has a maximum capacity of 9.6 mgd. The City of Rialto is a twenty five percent owner of the first phase of the WFF, which entitles it to 1.5 mgd or 1,032 gpm capacity. Water supplied to the City of Rialto feeds the Cedar Reservoir from a 12-inch transmission line in Linden Avenue, Summit Street and Cedar Avenue.

The existing water supplies and quantities available to the City, including well capacities and operational status, are summarized in Table 2-2.

**Table 2-2
Existing Water Production**

Pumping Basin	Well	Current Pumping (gpm) ⁽¹⁾ (mgd)		Serving Reservoir	Zone
Rialto	Rialto #1 ⁽²⁾	1,943	2.80	Cedar	1A
	Rialto #2 ⁽²⁾	2,200 ⁽³⁾	3.17	Cedar	1A
	Rialto #3 ⁽²⁾⁽⁴⁾	1,668	2.40	Cedar	1A
	Rialto #4 ⁽²⁾	2,471	3.56	Highland	2
	Rialto #5	2,950	4.25	Highland	2
	Rialto #6 ⁽²⁾	2,510	3.61	Highland	2
	Sub Total		19.79		
Chino (No Man's Land)	Chino #1 ⁽⁵⁾	1,617	2.33	Highland	2
North Riverside	Chino #2 ⁽⁵⁾	1,264	1.82	Highland	2
Lytle	City #1 ⁽⁶⁾	840	1.21	Highland	2
	City #2	2,355	3.39	Highland	2
	City #3 ⁽⁷⁾	848	1.22	Highland	2
	City #5 ⁽⁸⁾	0	0.00		1B
	Sub Total		5.82		
Bunker Hill	City #4A	3,234	4.66	Cactus	3A
	City #6 ⁽⁹⁾	1,162	1.67		1B
	Sub Total		6.33		
Total Well Capacity		25,062	36.09		
Total Effective Well Capacity		13,108	18.88		
Baseline Feeder ⁽¹⁰⁾		2,500	3.60	Cactus	3A
Oliver P. Roemer Water Filtration Plant		1,032	1.49	Cedar	1A
Total Production Capacity		16,640	23.97		

⁽¹⁾ Well capacities were obtained from the latest Edison Pump Tests performed for the City.

⁽²⁾ These wells have tested positive for low levels of perchlorate and their use has been discontinued.

⁽³⁾ Capacity for well Rialto #2 was obtained from the City's last Urban Water Management Plan.

⁽⁴⁾ This well has tested positive for low levels of perchlorate and has been equipped with well head treatment, but is awaiting permitting.

⁽⁵⁾ These wells have tested positive for low levels of perchlorate and have been equipped with well head treatment

⁽⁶⁾ The use of this well is temporarily discontinued when declining groundwater levels in the Lytle Basin caused by drought conditions occur.

⁽⁷⁾ Capacity in this well can be reduced by as much as 35% when declining groundwater levels in the Lytle Basin caused by drought conditions occur.

⁽⁸⁾ City Well #5 has tested positive for high levels of iron and the use of this well has been discontinued.

⁽⁹⁾ City Well #6 is not in use.

⁽¹⁰⁾ The City contracted for up to 2,500 AF/Yr, up to 2,500 gpm, with SBVMWD through the Baseline Feeder.

2.1.5 Baseline Feeder

In 1991, the City contracted for SWP water with SBVMWD, for an additional water supply. SBVMWD delivers in lieu water produced from the Bunker Hill Basin. SBVMWD-owned wells in the Bunker Hill Basin water is delivered through a 48" diameter transmission main. This agreement, referred to as the Baseline Feeder, adds approximately 2,500 acre-feet (AF) per year of supplemental water to the City's existing supplies.

In addition to the supply of water from SBVMWD through the Baseline Feeder, City Well #4A pumps from the Bunker Hill Groundwater Basin into the Baseline Feeder. The City then takes the water produced from Well #4A, or a portion thereof, from the Baseline Feeder when needed.

2 1 6 11" 2004 10 4 11 6 24 11" Average water use
in the City is approximately 103 gallons per capita per day. 20 8

In addition to providing water to customers in its service area, the City of Rialto wheels water to Marygold Mutual Water Company (MMWC) pursuant to an agreement. The water wheeled is water banked in storage in the Rialto Basin by SBVMWD. SBVMWD makes water available to MMWC through an agreement with them. Water pumped and wheeled by the City to MMWC is not counted against the City's pumping entitlement in the Rialto Basin. MMWC is one of the City's largest customers, and purchased 848 acre-feet of potable water from the City in 2004. This agreement entitles MMWC up to 2,420 AF/Yr through the year 2008.

The City of Rialto's primary source of water for 2004 (9,545 acre-feet or 67%) is from City owned groundwater wells within five (5) different water basins in the upper Santa Ana River Basin. The five (5) basins are the Rialto Basin (30% of the total well production), Lytle Creek Basin (28% of the total well production), the Chino Basin (No Man's Land) and North Riverside Basin (13% of the total well production) and 29% from the Bunker Hill Basin. The area in the Chino Basin that is referred to as 'No Man's Land' is within the Chino geo-hydrologic basin, but was not included in the 1973 adjudicated Chino Basin.

The remainder of the water entering into the City's distribution system comes from purchased water from SBVMWD and Lytle Creek surface water treated at the Oliver P. Roemer Water Filtration Facility (WFF). SBVMWD supplied 26% of the water through the Baseline Feeder and the remaining 7% of water was supplied by the WFF.

The total production for the City in 2004 was 14,281 AF. Consumption for the City and water supplied to MMWC for the same time period was 12,471 AF. This resulted in 12.7% unaccounted for water losses within the system.

Water in the City is used for domestic, commercial and landscape irrigation. Table 2-3 lists the number of past and present connections for each category. Most connections within the City's service area, including landscaped areas and City parks are metered.

**Table 2-3
Number and Category of Water Services by Year**

Category	1998	1999	2000	2001	2002	2003	2004
Single-Family Residential	10,189	10,252	10,252	10,252	10,357	10,638	10,683
Multi-Family Residential	-	-	-	-	-	-	-
⁽¹⁾	632	637	637	687	687	897	906
Commercial/Institutional	-	-	-	-	-	-	-
Industrial	195	201	201	252	252	223	230
Landscaping Irrigation	73	73	73	73	73	73 ⁽²⁾	78 ⁽²⁾
Other	-	-	-	-	-	-	-
Agricultural	-	-	-	-	-	-	-
TOTAL	11,089	11,163	11,163	11,264	11,369	11,854	11,897

⁽¹⁾ Multi-Family Residential use is included in the Single Family Residential usage.

⁽²⁾ Unmetered services.

The past and current potable water consumption for the different categories of uses within the City's service area is shown in Table 2-4 below.

**Table 2-4
Past and Current Potable Water Use by Sector (AF/Yr)**

	1998	1999	2000	2001	2002	2003	2004
Single Family Residential	5,341	5,964	6,053	7,452	6,937	8,409	7,059
Multi-Family Residential	1,357	1,271	0	-	-	-	-
Commercial/Institutional	817	1,159	3,885	4,399	3,636	4,042	3,921
Industrial	51	41	0	-	-	-	-
Government	-	-	-	-	-	-	-
Landscape	791	866	1,234	1,180	549	492	559
Sales to Other Agencies	1,400	1,478	1,559	1,495	1,517	1,029	848
Groundwater Recharge	-	-	-	-	-	-	-
Agricultural/Other	327	205	488	35	9	-	84
Total	10,084	10,984	13,219	14,561	12,648	13,972	12,471

Water production for the year of 2004 was 14,281 acre-feet (AF).

This represents a 12.7% unaccounted for water loss within the system. Table 2-5 lists the annual water production, consumption and unaccounted for water in the system for the past thirteen (13) years.

Table 2-5
Annual Water Production and Metered Sales

Year	Production (AF/Yr)	Metered Sales (AF/Yr)	Unaccounted For Water (Percent)
1989	10,947	10,551	3.6%
1990	10,849	9,707	10.5%
1991	9,562	8,566	10.4%
1992	9,626	9,396	2.4%
1993	9,490	9,045	4.7%
1994	10,591	9,128	13.8%
1998 ⁽¹⁾	11,757	10,084	14.2%
1999 ⁽¹⁾	12,997	10,984	15.5%
2000 ⁽¹⁾	14,182	13,219	6.8%
2001 ⁽²⁾	14,128	14,561	-3.1%
2002	13,927	12,648	9.2%
2003	14,067	13,972	0.7%
2004	14,281	12,471	12.7%

⁽¹⁾ During this time frame, meter reading was performed by an outside agency that estimated water usage.

⁽²⁾ Metered sales are larger than production figures. This number reflects correction in previous meter reading estimates.

Unaccounted for water losses within the system for the past 13 years ranges from negative percentages to 15.5%. This variation in percentage is thought to be from revenue received numbers and not actual metered deliveries. Water losses within the system are assumed to be in the range of 8% annually.

2.2 Service Area Information with 20 Year Projections

(California Water Code Section 10631 (a))

The major features of the City's climate are hot, dry summers and cool winters. Most of the precipitation occurs from November to March with little to none occurring during the summer months June through September. The average rainfall in the Valley is approximately 16-inches per year with occasional droughts on an average seven (7) year cycle. Summer temperatures commonly are above 85°F and may exceed 103°F.

In 2004, the City supplied water to 48,414 people within the City of Rialto. The City's service area, as shown in Figure 2, covers an area of approximately 8.5 square miles, and is comprised of a mix of residential, commercial/industrial, public facilities, parks, schools, and highway. The City has been described as a bedroom community because the majority of the land area in the City is designated residential.

The water service area for the City of Rialto is located in the middle of the City, where limited growth will occur. The bulk of the population growth within the City of Rialto will be within the northern and southern sections of the City which are in WVWD's service area. The Southern California Association of Governments (SCAG) projected population numbers for the City of Rialto are shown in Table 2-6. The population served by the City's water system is estimated to grow less rapidly than the general City of Rialto projections from SCAG, due to the limits of the City's service area.

Table 2-6
SCAG Population - Current and Projected for the City of Rialto

Year					
2005	2010	2015	2020	2025	2030
97,848	99,936	102,851	105,727	108,486	111,128

A preliminary redevelopment plan for the Rialto Airport and the I-210 freeway corridor has just been unveiled that will consist of a mixed use community. The community seeks to provide a balance between jobs and housing and is proposing 2,500 residential units, 230 acres of commercial and 470 acres of light industrial. Residential demand is estimated to be 1,650 AF/Yr, commercial demand at 900 AF/Yr and light industrial at 1,050 AF/Yr. Approximately one quarter of this development is within the City's service area. This will place an additional 900 AF/Yr demand on the City's system once construction is completed. Development of this area is expected to commence in 2007.

In addition to providing water to customers in its service area, the City of Rialto wheels water to Marygold Mutual Water Company. This agreement entitles MMWC up to 2,420 AF/Yr through to the year 2008. The City has no plans to extend this agreement beyond 2008.

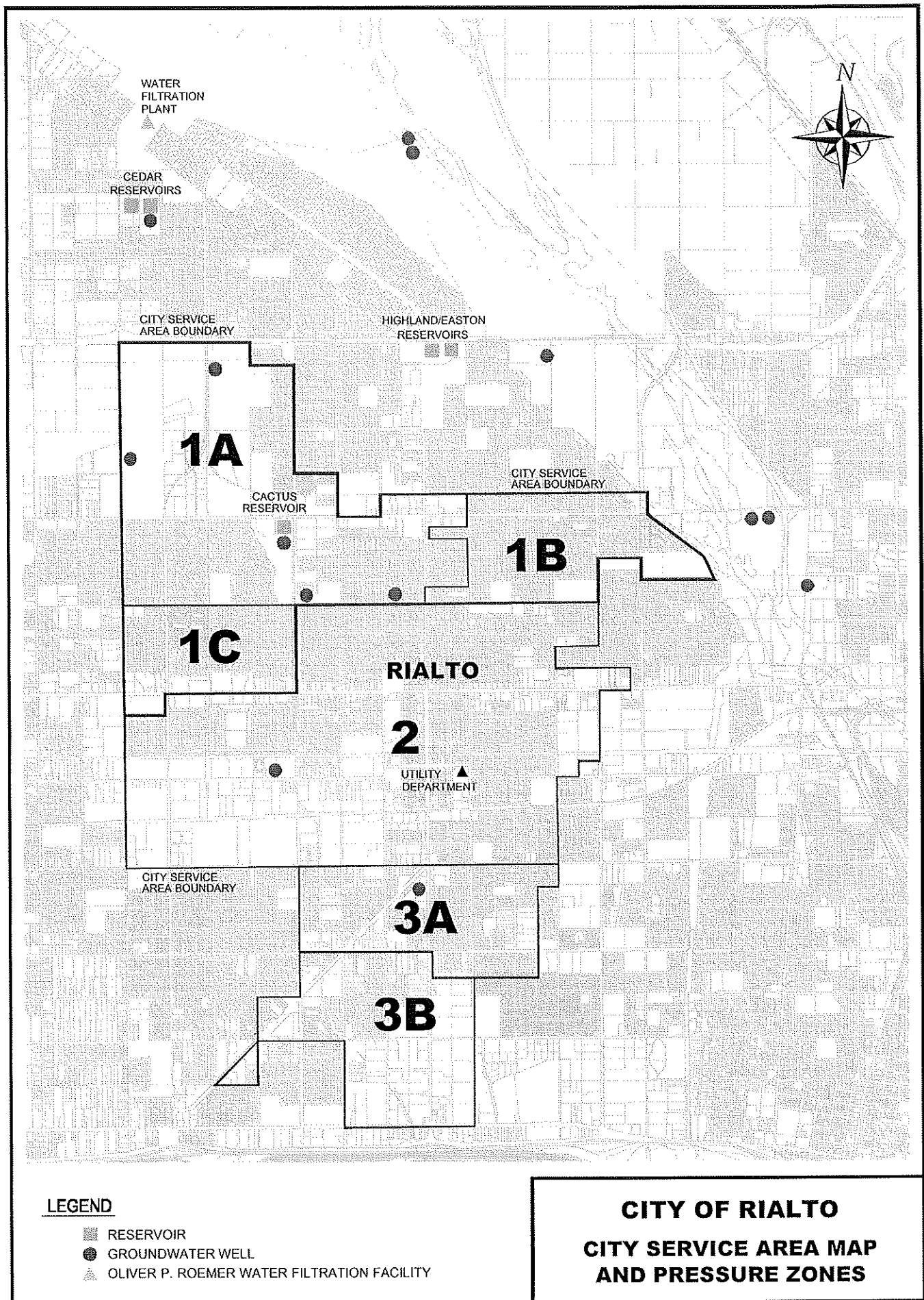


Figure-2

From 1999 to 2004, the City's service area experienced a 6% increase in connections. Residential growth for the same time period was 4%. Table 2-7 shows the City's growth for that period.

Table 2-7
Connection Growth

Year	Total Connections ⁽¹⁾	% Increase Over Previous Year
1999	11,163	
2000	11,163	0.0%
2001	11,264	0.9%
2002	11,369	0.9%
2003	11,854	4.3%
2004	11,897	0.7%

⁽¹⁾ Includes domestic, commercial and irrigation.

The projected population growth within the City's service area was based on undeveloped space within the service area, land use designations, known developments and past growth rate. The population served of 48,418 was divided by the number of residential connections to obtain an average of 4.5 people per household. SCAG's population statistics project a 3.5 person per household ratio for the City of Rialto which is more consistent with the planned residential development. The existing connections are based on 4.5 people per household while the projected connections listed below are based on SCAG's 3.5 people per connection calculation. Table 2-8 below shows the expected population and residential connection growth as well as the projected domestic water demand for the City from the year 2005 to 2030 in five (5) year increments. The City's distribution system is expected to be fully built out by 2015.

Table 2-8
Expected Growth and Projected Domestic Water Demands

Year	Growth per Year (%)	Projected Population	Projected Residential Connections	Projected Domestic Demand (AF/Yr)
2005		48,700	10,770	7,070
2010	1.45 ⁽¹⁾	52,300	11,800	7,750
2015	0.61	53,900	12,260	8,050
2020	0	53,900	12,260	8,050
2025	0	53,900	12,260	8,050
2030	0	53,900	12,260	8,050

⁽¹⁾ Airport development is expected to be complete by 2010.

The average day domestic demand for the City's 10,683 residential connections in 2004 was 590 gpd per connection (excluding Marygold Mutual Water Company). The City's ultimate number of residential connections is estimated to be 12,260 at build-out, which is estimated to be by 2015. This translates into an additional 1,490 connections or a 12% increase. The City's long term domestic demand is estimated to be 8,050 AF/Yr.

2.3 Water Sources

(California Water Code Section 10631 (b))

The City obtains water from canyon surface flows on the east side of the San Gabriel Mountains, including North Fork Lytle Creek, Middle Fork Lytle Creek, and South Fork Lytle Creek which is treated at WVWD's Oliver P. Roemer Water Filtration Facility. It also receives water through the Baseline Feeder from SBVMWD and from fourteen wells in five (5) different groundwater basins. All five (5) of the groundwater basins have been adjudicated and are managed. Relevant portions of these adjudications and judgements is provided in the appendices.

Of the water supplied within the distribution system, the current mix is 93% from groundwater wells, and 7% from surface water treated at WVWD's WFF.

Table 2-9
Current and Planned Water Supplies (AF/Yr)

Water Supply Sources	2005 ⁽¹⁾	2010	2015	2020	2025	2030
Wholesale Water - SBVMWD	2,200	2,500	2,500	2,500	2,500	2,500
Groundwater	12,000	16,566	18,566	22,166	22,166	22,166
Surface Diversions	800	1,300	1,300	1,300	1,300	1,300
Total	15,000	20,366	22,366	25,966	25,966	25,966

⁽¹⁾ Estimated production by the end of the year.

2.3.1 Groundwater Sources

Lytle Creek Basin

The City of Rialto owns groundwater extraction rights in the Lytle Creek groundwater basin. The basin was adjudicated under the 1924 Judgment No. 17,030 from the Superior Court of San Bernardino County and is based upon the City's stock ownership in the Citizens Land and Water company, the Lytle Creek Water and Improvement Company, and the companies that the City acquired which were named in the 1924 Judgment (Rialto Domestic Water, Rancheria Water Company and Mutual Water Company). The 1924 Judgment restricts the place of use and rate of extraction for the right to export out of the Lytle Creek Region.

Table 2-10 below shows the extraction rights by rate acquired by the City in the Lytle Creek Region. The Lytle Creek Region is composed of the entire Lytle Creek Basin and some portions of the Bunker Hill Basin. The 1924 Judgment limits these extractions in the Lytle Creek Region.

Table 2-10
Lytle Creek Region Extraction Rights

Name of Party Acquired by the City	Extraction Rights (gpm)
Rialto Domestic Water Company	900
Citizens L & W Company (14.58%)	1,383
Lytle Creek W & I Company (21.96%)	1,706
Mutual Water Company	1,125
Rancheria WC	1,080
CITY OF RIALTO TOTAL	6,194

The Lytle Creek Groundwater Basin has an estimated long term safe yield of 35,000 to 45,000 acre-feet per year. The basin is highly porous and easily replenished during heavy precipitation years. Recharge for the basin is from storm water runoff in the Lytle Creek watershed and from percolation of State Project Water by the SBVMWD. The depth to groundwater in the basin varies from 50 feet to 400 feet depending on whether it is a drought cycle or wet cycle. Well production in the basin varies as the basin levels change from year to year. The City's long term water supply from the Lytle Basin varies from 5,000 acre-feet per year to 1,700 acre-feet per year. There is no known contamination within the Lytle Basin and no contamination is expected to be detected in the future.

Chino Basin

The Chino groundwater basin was adjudicated in 1978 by Judgment entered in the lawsuit captioned *Chino Basin Municipal Water District v. City of Chino*, San Bernardino County Superior Court Case No. 164327, redesignated as Case No. RCV 51010, which was updated in 2000 by the "Peace Agreement", and is managed by the court appointed Chino Basin Watermaster. The Judgment declares that the safe yield of the Chino Basin is 140,000 acre-feet. The adjudicated boundary on the east portion of the basin does not follow the exact geologic boundary. The City of Rialto does not have any groundwater extraction rights under the 1978 Judgment. The City has one (1) well that is located within 'No Man's Land', which is the area within the hydro-geologic Chino Basin and is outside of the adjudicated Chino Basin boundary. The City has no judicially imposed limitations on extractions for this well.

The City's long term water supply from No Man's Land (the Chino Basin) is estimated to be 2,000 to 3,000 AF/Yr. The groundwater basin has problems with nitrate contamination, and normally the wells must be sealed to a minimum depth of 350 feet below the surface to prevent nitrate inflow above the maximum contaminate level of 45 mg/l for nitrates. Chino #1 is equipped with a nitrate removal system.

The Chino Basin consists of about 235 square miles of the upper Santa Ana River Watershed. The Chino Basin is an alluvial valley that is mainly flat from east to west and slopes from the north to the south at a one (1) to two (2) percent grade. Elevations in the valley range from 2,000 feet to 500 feet at Prado Dam. It is one of the largest groundwater basins in southern California with about 5,000,000 acre-feet of water and an unused storage capacity of about 1,000,000 acre-feet.

Rialto Basin

The City of Rialto has groundwater extraction rights in the Rialto Groundwater Basin. The basin was adjudicated under the 1961 Decree No. 81,264 from the Superior Court of San Bernardino County, and is managed by the Rialto Basin Management Association (made up of the stipulated parties to the judgment). When the basin's three (3) index wells (WVWD's Well #11 and Well #16, and Rialto's Duncan Well or Rialto Well #4) average mean sea level elevation is above 1002.3 feet when measured in March, April, or May, the City of Rialto has no restrictions on yearly extractions. The City also has no restrictions on the rate of pumping per minute or day. When the average standing water level in the three (3) index wells falls below 1002.3' msl and above 969.7' msl, the City is restricted to total groundwater extractions of 4,366 acre-feet per year. This extraction right is based upon the City's listed rights in the Decree, ownership of wells listed in the Decree, stock ownership in the Citizens Land and Water Company, and stock ownership in the Lytle Creek Water and Improvement Company. Table 2-11 summarizes the City's extraction rights by source.

**Table 2-11
Rialto Groundwater Basin Extraction Rights**

Source	Extraction Right (AF/yr)
City of Rialto	1,580
14.58 % of Citizens	475
21.96% of Lytle Creek	791
Well 1S/5W-3B1	490
Well 1S/5W-3J1	490
Well 1S/5W-3N1	540
TOTAL	4,366

When the average of the three (3) index wells drops below 969.7' msl, groundwater extractions are reduced for all parties stipulated in the Decree by 1% per foot below the 969.7' msl, but not to exceed 50% reduction.

The extraction rights listed in the 1961 Decree totaled 15,290 AF/Yr. Fontana Union Water Company's (FUWC) Well #22 (renamed Well 10-A when it was acquired by San Gabriel Valley Water Company) is located within the Rialto geological groundwater basin, but was left out of the adjudicated Rialto groundwater basin in the 1961 Decree. Well 10-A has produced an average of 950 to 1050 AF/Yr for the last 50 years. Within the last few years this well, plus a second well (Well 10-B) have produced well over 3,000 AF/Yr.

There are overlying riparian water rights owners that also pump from the basin. These overlying riparian water rights holders (e.g. Sierra Lakes) are expected to extract up to 800 AF/Yr.

In the last several years, extractions have been limited due to groundwater contamination plumes of volatile organic compounds (VOC) from the Mid Valley Landfill and perchlorate from the abandoned rocket fuel plant north of Highland Avenue. Groundwater extractions are expected to return to previous levels when San Gabriel Valley Water Company begins operating its GAC treatment plant for its wells (including FUWC's wells). The City has entered into an agreement with the County of San Bernardino, to lease 1,600 AF/yr of its Rialto Basin water rights during drought conditions in order to allow the San Gabriel Valley Water Company (SGVWC) to continue to extract and remove VOC's from the Mid-Valley Landfill contamination plume. A separate agreement provides Rialto with funding to drill a well to make up for the lost supply. This agreement will terminate in the year 2020.

The long term drought water supply for the City from the Rialto Basin is expected to be approximately 2700 AF/Yr (4300 AF/Yr minus 1600 AF/Yr for SGVWC) when the index wells for the Rialto Basin remain between 1002.3' and 969.7 msl. When the index wells drop below 969.7' msl, the City's pumping rights could be restricted to as little as 583 AF/Yr ($4366 \times 50\%$ minus 1600).

The City currently wheels domestic water to Marygold Mutual Water Company through the City's pipeline transmission system from Rialto Well #5. The amount wheeled varies from year to year up to 1,500 AF in 1999. Marygold Mutual Water Company derives the supply from the Rialto Groundwater Basin through an agreement with the SBVMWD.

SBVMWD has stored approximately 43,000 acre-feet of State Project Water over the last 25 years to the Rialto Basin through groundwater spreading in its Linden Spreading Basins. These spreading basins no longer exist. The City's agreement with SBVMWD allows the City to pump the spread water stored in the Rialto Basin for delivery to Marygold Mutual Water Company, without the pumping being counted against the amount specified in the 1961 Decree. The City also has the option to purchase SBVMWD's stored State Project Water in the Rialto Basin by additional pumping from the Rialto Basin. This additional pumping would not be counted against the City's 1961 decree extraction rights.

Groundwater storage capacity of the basin is about 210,000 acre-feet, with an estimated 120,000 acre-feet for the Rialto portion of the sub-basin and about 93,000 acre-feet for the Colton portion. The total storage capacity has been estimated at 2,517,000 acre-feet. The basin shows rises of water levels during high precipitation years and slower decline over years of drought. It has also shown declines from SGVWC's over pumping of SGVWC's 1961 decree extraction rights.

Bunker Hill Basin

The Bunker Hill Basin was adjudicated by the 1969 Judgment No.117,628 of the Court of Orange County and is managed by the court appointed Watermasters (SBVMWD and Western Municipal Water District). SBVMWD's primary function is to plan and develop a long-range water supply for water agencies within the upper Santa Ana River Basins. These two (2) agencies have adopted a Regional Water Facilities Master Plan that manages the Bunker Hill Basin. The objectives of the Master Plan are captured in the following Mission Statement:

"Develop regional facilities to allow coordinated management of available water resources to meet the ultimate quantity and quality requirements of all water purveyors in the District, and increase the reliability of supplies by maximizing the use of local water resources and optimizing the use of imported water. The regional facilities should be cost effective, and be developed in a systematic, phased program with the cooperation of the water purveyors."

The City currently has two (2) wells, City (Bunker) #4A and #6 in the Bunker Hill Basin and also purchases water from the Bunker Hill Basin from the SBVMWD through the Baseline Feeder. There are no restrictions on Rialto's extractions from the Bunker Hill Basin except within areas of the Lytle Creek Region and the City of San Bernardino's groundwater management zone. The City of San Bernardino's groundwater management zone, restricts new or additional pumping.

Restrictions on the City of Rialto's pumping rights from the Bunker Hill Basin is that all water is to be used within the boundaries of the SBVMWD. Should the demand on the basin by all local cities exceed a certain level, then SBVMWD is obligated to supply SPW to replenish the basin. In times of drought, the quantity of SPW available may be severely restricted.

It is estimated that there is as much as 1.6 trillion gallons of water in the basin, with sufficient supply for many consecutive drought years without any natural recharge. Historically, ground water pumping within this basin has been partially controlled by a court judgment, which determined that the safe yield for the Bunker Hill Basin was 232,100 acre-feet per year. It is believed that this control on pumping, combined with SPW deliveries and annual rainfall is sufficient to replenish the basin storage level for all potential future demands. The long term water supply for the City from the Bunker Hill Basin is estimated to be 10,000+ acre-feet per year.

Plumes of various chemical Pollutants have been detected in the Bunker Hill groundwater basin requiring installation of treatment or blending.

Baseline Feeder

In 1991, the City entered into a joint venture with WVWD, Riverside Highland Water Co., and SBVMWD to construct the Baseline Feeder. The Baseline Feeder is a 48" diameter transmission water line with a capacity of 60 mgd designed to transport water from the Bunker Hill Basin west to the Rialto area in lieu of the SWP water for which Rialto contracted. The City has a contract with SBVMWD for deliveries of 2,500 AF/Yr to be provided by SBVMWD for reaches 1 and 2 (10th St. and J St. to Meridian Ave and Baseline) for 20 years with two (2) 10 year options to renew. The City owns 33% of the pipeline from Meridian Ave and Baseline to Cactus Ave and Baseline Ave.

In 1991, when the pipeline was constructed, the City and WVWD entered into a contract with SBVMWD to finance the cost of reaches 1 and 2 of the pipeline with Certificates of Participation for 20 years. The City and WVWD were then obligated to purchase 2,500 acre-feet per year and 5,000 acre-feet per year of water respectively from SBVMWD at an approximate cost of \$130 to \$140 per acre-foot for 20 years.

The City of Rialto however, has been receiving amounts in excess of 2,500 AF/Yr due to WVWD transferring a portion of its share to be utilized by the City. If WVWD needs extra water to supply their customers, Rialto will only receive their allotted supply.

To avert a water shortage, in 1991, the City entered into an agreement with WVWD to jointly construct and own a 1.0 million gallon stilling reservoir and booster station to boost water from wells in the 9th St and Lytle Creek Wash area into the Baseline Feeder. The City has one third ownership in the facilities and WVWD has two thirds.

The wells in the Lytle Creek wash area in the Bunker Hill Basin usually have significant amounts of entrapped air in the groundwater that is pumped. The stilling reservoir removes the entrapped air. The booster station has three (3) 300 horsepower pumps and motors that pump into the Baseline Feeder through a 30" pipeline connection. The pumping station and the 30" pipeline are designed to have the capability to boost up to 17 mgd into the Baseline Feeder.

Rialto's City Well #4A pumps from the Bunker Hill groundwater basin into the Baseline Feeder. The City then takes this water, or a portion thereof, from the Baseline Feeder when needed. The production for City Well #4A is reflected in the 45% of water supplied through the Baseline Feeder from SBVMWD.

North Riverside Basin

The North Riverside Basin is part of the 1969 Judgment No. 117,628, under the Bunker Hill Basin. The Riverside Groundwater Basin is a large alluvial fill basin that is bounded by major faults and topographic barriers. Recharge to the basin occurs by the underflow from basins to the north, contributions from the Santa Ana River, and from percolation of surface

water runoff from the surrounding uplands, in particular the Box Spring Mountains to the east.

2.3.2 Surface Water Sources

Lytle Creek - 1897 Judgment Rights

The City of Rialto has a total of 115.63 miners inches (1.0 miners inch = 9.0 gpm) or 1040.7 gallons per minute of surface water diversion rights in Lytle Creek. The surface water diversion rights for Lytle Creek were determined in the 1897 McKinley Decree entered in Los Angeles Superior Court case No. 20,790. The City of Rialto owned 21.98% of the shares in the Lytle Creek Water and Improvement Company. The Lytle Creek Water & Improvement Co. realized a total of 329.39 miners inches from the Decree. The City of Rialto obtained 72.4 miners inches from its stock shares in the Lytle Creek Water and Improvement Co. The City of Rialto also obtained an additional 43.23 miners inches of Lytle Creek surface water diversion rights when the City purchased the Rialto Domestic Water Company. The Rialto Domestic Water Company obtained the 43.23 miners inches in 1914 from the Fontana Development Company as a payoff for a \$50,000 loan that the Rialto Domestic Water Company made to the Fontana Development Company in 1900.

The City utilizes all of its surface water diversion rights in Lytle Creek through its ownership of 1.5 mgd of capacity in the Oliver Roemer Water Filtration Facility that WVWD owns and operates. The surface water from Lytle Creek is diverted by Southern California Edison at the mouth of Lytle Creek Canyon to generate electrical power at its Fontana Power Plant located on the east side of Riverside Avenue at the intersection of Linden Avenue. WVWD bills the City for its portion of the WFF operation and maintenance costs. When the flows of Lytle Creek at the point of diversion at the mouth of the canyon drop below 7,182 gpm (798 miners inches), all diversion right holders must reduce their diversions to a proration schedule set forth in the 1897 Decree. The basis for this proration schedule was developed by Thomas Keefe in 1903 for the Superior Court of San Bernardino County in order to administer the 1897 Decree. If the City is not receiving its full Lytle Creek surface water allotment, they are permitted to make up the deficit by additional pumping in the Lytle Creek Region.

The water supply sources in Table 2-12 shows the range for annual amounts of water that the City can reasonably expect from their water rights and the City's ability to utilize these water supply sources.

Table 2-12
Existing and Potential Water Supply Sources

WATER SOURCES	Maximum when available WATER RIGHT	Range of PRODUCTION POTENTIAL Approximate Max. to Min. (AF/Yr)
Little Creek Surface Water	1040.7 gpm	1,680 to 600
Ground Water		
Little Creek Region	6,194 gpm	5,000 to 1,700
North Riverside Basin	No Limit	2,500 ⁽²⁾
Rialto Basin	4,366 AF/Yr	2,766 to 1,382
Bunker Hill Basin	No Limit ⁽¹⁾	10,000+
Chino Basin (No Mans's Land)	No Limit	3,000 to 2,000
SBVMWD/Baseline Feeder	No Limit	2,500+

⁽¹⁾ Areas within the Little Creek Region have pumping and export limitations.

⁽²⁾ There are no water right limitations for the City. The safe yield of the basin may restrict pumping.

The five (5) groundwater basins that the City utilizes are shown in Figure 3, along with the City's service area boundary, and the locations of the existing City wells.

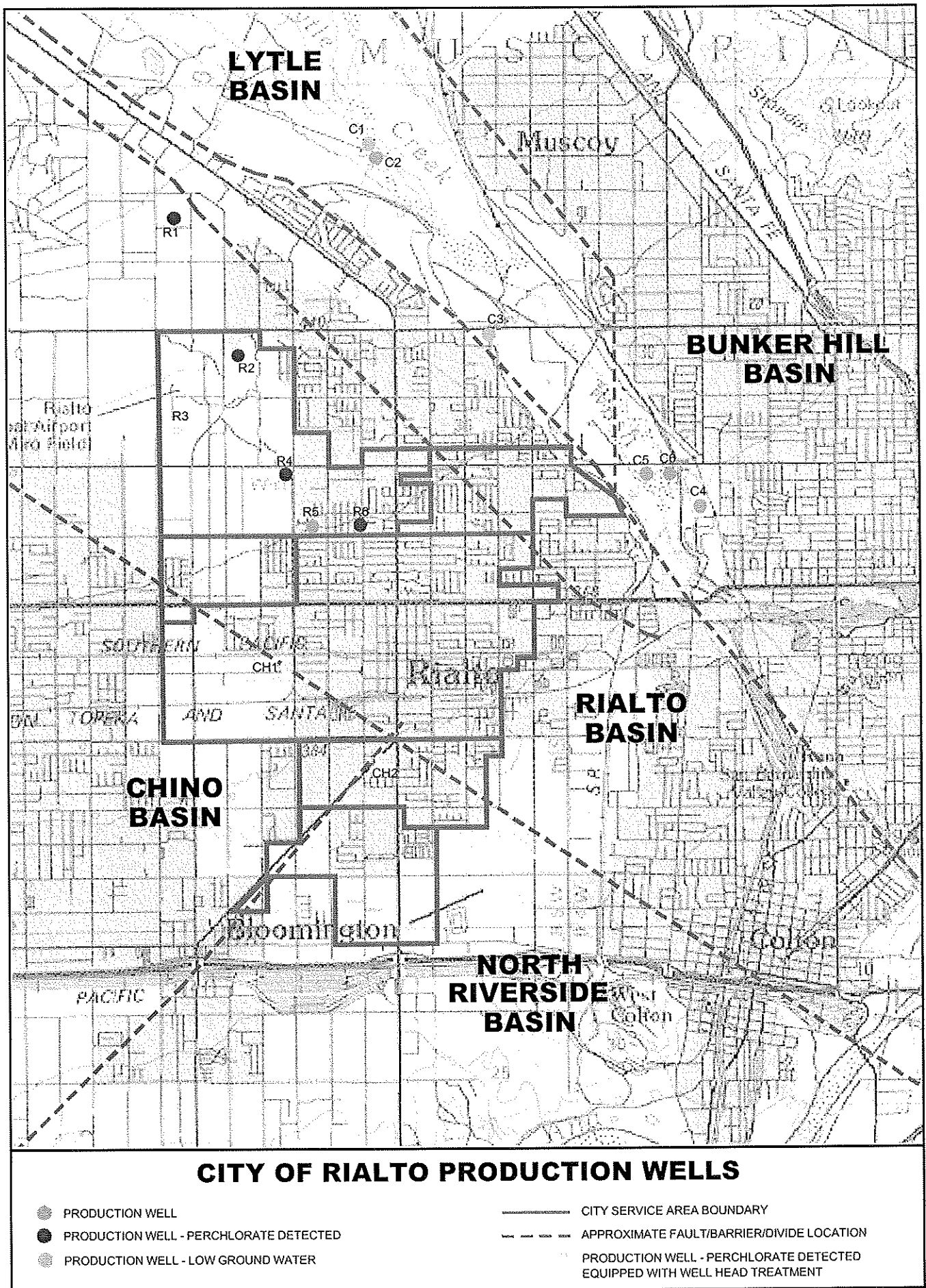


Figure-3

2.3.3 Past Basin Production

The City's use of the different water supply sources depends on its daily demand which varies from winter to summer. If wells are out of service for maintenance or repair, the City has the ability, and right, to pump its wells up to 24 hours per day.

Table 2-13
Amount of Groundwater Pumped (AF/Yr)

Basin	Production						
	1998	1999	2000	2001	2002	2003	2004
Lytle	3,079	3,633	3,683	2,529	2,729	2,420	2,688
North Riverside/ Chino (No Man's Lake)	593	1,021	820	1,069	886	201	1,243
Rialto	4,326	3,068	4,073	4,583	5,720	4,590	2,864
Bunker Hill	678	1,349	974	1,496	773	1,778	2,750
Total Well Supply	8,676	9,071	9,550	9,677	10,108	8,989	9,545
Surface Water	896	1,461	1,619	1,305	1,143	1,222	1,063
Purchased	2,185	2,465	3,013	3,146	2,676	3,856	3,673
Total Supply	11,757	12,997	14,182	14,128	13,927	14,067	14,281
Percentage of	74%	70%	67%	68%	73%	64%	67%

*Unverified data provided by the City of Rialto staff.

The annual amount of groundwater pumped for the past five (5) years represents the City's production capacity during the most severe of drought conditions. During this drought period, the basin capacities have been sufficient to supply the demand. The problem lies in the quality of the source of supply, namely water in the Rialto Basin. The City has experienced a tremendous loss of production in the Rialto Basin due to the perchlorate contamination. As can be seen in Table 2-13 above, production in the Rialto Basin declined in 2004 from previous year extractions. The City expects to utilize well head treatment, primarily from Rialto #3, to bring its production capacity back to pre-contamination levels.

The City has dropped the bowls, removed the booster and changed City Well #3 to oil lubrication thus improving production. The City also plans to replace (re-drill) City Well #1 in the Lytle Creek Basin to enable the City to have a more consistent production from its Lytle Creek Basin wells during extended drought periods.

2.3.4 Projected Basin Production

Above average rainfall during the winter of 2004/2005 has recharged most of the groundwater basins utilized by the City, back to levels seen in average water years, except the Rialto Basin. The City's well capacity will increase above that seen in recent years, enabling them to provide sufficient supply to meet the projected demand for the next several years as shown in Table 2-14.

Table 2-14
Amount of Groundwater Projected to be Pumped (AF/Yr)

BASIN	2010	2015	2020	2025	2030
Lytle	5,600	5,600	5,600	5,600	5,600
North Riverside	2,500	2,500	2,500	2,500	2,500
Rialto	2,766	2,766	4,366	4,366	4,366
Bunker Hill	6,000	6,000	8,000	8,000	8,000
Chino	1,700	1,700	1,700	1,700	1,700
TOTAL	18,566	18,566	22,166	22,166	22,166
% of Total Water Supply	83%	83%	85%	85%	85%

In order to continue utilizing the City's contaminated groundwater wells, the City installed well head treatment on two (2) of its wells. A third has also been equipped but is awaiting clearance from the Department of Health Services before it is placed back in service. The City plans to continue production within the Rialto Basin by installing well head treatment on Rialto Well #1 when sufficient funds are available.

With the construction of the planned water supply projects as outlined in Section 2.9, the City is projected to have sufficient groundwater available to meet future demands. The City also has the option of purchasing additional supply from the City of San Bernardino through the Baseline Feeder if a contract for such an agreement were made.

2.4 Reliability of Supply

(California Water Code Section 10631 (c))

As with all water supplies in Southern California, the City's water supply is vulnerable to chemical contamination and to seasonal and climatic changes within the area based upon precipitation patterns and may vary substantially from one year to the next.

Lytle Creek, which is a perennial stream in the upper watershed, provides a local surface water supply to the area. Water from Lytle Creek is treated by WVWD at the Oliver P. Roemer Water Filtration Facility. Surface flows fluctuate seasonally and the City's water rights could be prorated whenever Lytle Creek flow is below 798 miner inches (16 cubic feet per second (cfs)). Southern California Edison's records, for the past 30 years, indicate that the average flow for the summer months is 17 cfs and for the winter months is 37 cfs. In addition to the flow fluctuation, the turbidity of Lytle Creek's surface water also varies seasonally. Southern California Edison (SCE) will shut down their power generation whenever the water turbidity exceeds their operational limitations. This in turn will cause the Oliver P. Roemer Water Filtration Facility to be shut down.

Water from Lytle Creek is also obtained from a horizontal well, known as the Grapeland Tunnel, which is an infiltration gallery below the streambed. This water will still be available when surface flow turbidity levels are high.

The Lytle Creek Basin, which is recharged by water from the Lytle Creek watershed, is subject to extreme fluctuations based on precipitation in the watershed and has experienced up to 400-foot drops in groundwater levels with a subsequent loss of up to 50% of the Lytle Basin's potential as a water supply source. The City plans to re-drill one well in the Lytle Basin to moderate its pumping reduction from the Lytle Basin

The Rialto Basin has a perchlorate contamination plume that has reduced its potential from 4,300+ acre-feet per year to roughly 2,800 AF/Yr, until the contaminated wells are equipped with well head treatment.

The Bunker Hill Basin has fluctuated up to 100 feet in groundwater levels from drought cycles to above normal precipitation cycles. The groundwater basin contains over five (5) million acre-feet of water and is expected to be a reliable long term water supply source even in drought periods. The Bunker Hill Basin is expected to make up any short fall in water supply that could be caused by a long term drought.

The North Riverside and Chino Basins do not appear to be affected by drought cycles. The North Riverside Basin has a projected safe yield of 33,729 AF/Yr. The City of Riverside which has not as yet utilized their 21,085 AF/Yr extraction rights within the Basin, is expected to in the future. This would then leave 12,644 AF/Yr available between four (4) local water purveyors. The City's portion is estimated to be 4,000 AF/Yr.

2.4.1 Basis of Water Year Data

The basis for the water year data, as shown in Table 2-15, used for the supply reliability assessment, is from available historic data provided by the City and from information within the City's 2000 Water Master Plan as shown in Table 2-15.

Table 2-15
Basis of Water Year Data

Water Year Type	Base Year		
Average Water Year	1996		
Single-Dry Water Year	2000		
Multiple-Dry Water Years	2002	2003	2004

Due to the size of the groundwater basins utilized by the City, a single dry year will not affect well production. Surface flow, however, during a year without rainfall can be significantly affected. The City receives 7% of its annual water supply from surface flow from Lytle Creek, and therefore would not suffer during a single dry water year.

The region had been experiencing a drought that started in 1999 and continued until late 2004 causing water levels in the basins to decline. By 2004, levels in the Lytle Basin were the lowest the City has seen. For this reason the multiple dry years of 2002, 2003, and 2004 were selected for both basin production and surface flows. Table 2-16 lists the existing water supply sources and projected availability of each of the sources during a single-dry year and multiple-dry years.

**Table 2-16
Supply Reliability**

	Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
			Year 1	Year 2	Year 3
Lytle Creek Basin	% of Normal	98	84	76	68
North Riverside Basin	% of Normal	100	92	88	80
Rialto Basin	% of Normal	100	73	61	50
Bunker Hill Basin ⁽¹⁾	% of Normal	100	88	81	75
Chino Basin	% of Normal	100	100	100	100
Lytle Creek Surface	% of Normal	77	85	92	77

The normal water year reflects the yearly amounts of water that the City can reasonably expect from their water rights and their ability to utilize these water supply sources. The use of the different water supply sources depends on the daily demand which varies from winter to summer.

The annual amount produced in past normal, single dry, or multiple dry water years from a basin does not give an accurate representation of potential basin production. Factors such as lower system demand, cost of pumping, inoperable wells, pumping duration, replenishment costs, water quality, cost of supply and the ability to treat water all affect annual basin production numbers. The City will analyze all of these factors to determine the most economical source of supply to use. ■

The City's normal operating practice is to pump their wells 16 hours a day during off peak hours to take advantage of Southern California Edison's time of use rate. If, for some reason, wells are out of service for maintenance or repair, the City has the ability and right to pump its wells up to 24 hours per day. As shown in Table 2-2 the City has 18.88 mgd production capability from all of its wells in operation 24 hours per day. The City also has 1.49 mgd capacity in the Oliver P. Roemer WFF and 3.6 mgd in purchased water supplies through the Baseline Feeder. The three (3) water sources have a combined production capacity of 23.97 mgd. With its largest water supply source out of service (Well 4A at 4.66 mgd), the City has the ability to supply up to 19.30 mgd.

2.5 Transfer and Exchange Opportunities

(California Water Code Section 10631 (d))

The City has various interconnections with adjacent water systems such as the Cities of Fontana, San Bernardino, and the WVWD, to assist in the event of an emergency. There exists no formal agreement for the exchange of water between these water purveyors, however, WVWD has in the past provided water to the City during peak summer demands. Water from WVWD should not be counted as a firm source of supply.

The City, in a joint venture with WVWD and SBVMWD constructed 25,000 feet of 48-inch transmission line known as the Baseline Feeder. Through an agreement with SBVMWD, the City can provide up to 2,500 acre-feet per year of supply through this transmission line. The City has one (1) well (Well 4A) that is connected to the Baseline Feeder and can pump into this system.

The City has four (4) interconnections with WVWD and can take water from two (2) locations. WVWD can take water from the City of Rialto's water system at two (2) locations. The Cedar Avenue connection is the delivery point for the City of Rialto's Lytle Creek surface water entitlement. Previous to the up sizing of this connection, the City of Rialto received its share of Lytle Creek surface water directly from the Oliver P. Roemer Water Filtration Facility.

The City of Rialto in the past has leased water rights from the City of Colton on an emergency short term basis that allows the City to pump additional water from the Rialto Colton Basin, beyond its existing rights. The City of Colton has expressed a willingness to enter into similar agreements in the future, if needed during a water supply shortage.

The City has completed a connection to Riverside Highlands water system and can, on emergency basis, transfer 1,000 AF/Yr (619 gpm - based on 24 hours per day) into the City's system.

Supplemental water could be provided by the City of San Bernardino through the Baseline Feeder if contracts for such an exchange were prepared.

The City has entered into an agreement with the County of San Bernardino to lease 1,600 AF/Yr of its Rialto Basin water rights during drought conditions in order to allow SGVWC to continue to extract and remove VOC's from the Mid-Valley Landfill contamination plume. This agreement consists of a 20 year lease which ends in 2018.

A separate agreement, that terminates in the year 2020, provides Rialto with funding to drill a well in the Bunker Hill Basin to make up for the lost supply.

2.6 Water Use by Customer - Past, Current and Future (California Water Code Section 10631 (e))

Table 2-17 below shows the past, current and projected water use within the City in five (5) year increments for single family residential, commercial, agricultural, landscaping irrigation, wholesale and unaccounted for water losses through the year 2005. Information used in the table was obtained from the City's Public Water System Statistics Reports submitted to the Department of Water Resources for the Calendar Years 2000 through 2004.

2 1 7
Water Use by Customer - Past, Current and Future (AF/Yr)

Year		Single Family ⁽¹⁾	Comm. ⁽²⁾	Agri.	Hydrant ⁽³⁾	Landscaping Irrigation	Sales to MMWC ⁽⁴⁾	Water Loss	Total
2000	# of Accounts	10,252	637	73	---	201	1	N/A	11,164
	Deliveries (AF/Yr)	6,053	3,885	488	---	1,234	1,559	963	14,182
2001	# of Accounts	10,252	687	73	---	252	1	N/A	11,265
	Deliveries (AF/Yr)	7,452	4,399	35	---	1,180	1,495		14,561
2002	# of Accounts	10,357	687	73	---	252	1	N/A	11,370
	Deliveries (AF/Yr)	6,937	3,636	9	---	549	1,517		12,648
2003	# of Accounts	10,638	897	---	73 ⁽³⁾	223	1	N/A	11,832
	Deliveries (AF/Yr)	8,408	4,042	---	---	492	1,029		13,971
2004	# of Accounts	10,683	906	---	78 ⁽³⁾	230	1	N/A	11,898
	Deliveries (AF/Yr)	7,059	3,921	---	84	559	848	1,810	14,281
2010	# of Accounts	11,800	1,019	---	78	---	0	N/A	12,897
	Deliveries (AF/Yr)	7,750	4,410	---	84	---	---	1,056	13,300
2015	# of Accounts	12,260	1,080	---	78	---	0	N/A	13,418
	Deliveries (AF/Yr)	8,050	4,680	---	84	---	---	1,086	13,900
2020	# of Accounts	12,260	1,080	---	78	---	0	N/A	13,418
	Deliveries (AF/Yr)	8,050	4,680	---	84	---	---	1,086	13,900
2025	# of Accounts	12,260	1,080	---	78	---	0	N/A	13,418
	Deliveries (AF/Yr)	8,050	4,680	---	84	---	---	1,086	13,900
2030	# of Accounts	12,260	1,080	---	78	---	0	N/A	13,418
	Deliveries (AF/Yr)	8,050	4,680	---	84	---	---	1,086	13,900

⁽¹⁾ Includes Single and Multi Family Residential usage.

⁽²⁾ Estimated future Commercial consumption is projected at 1.2% growth per year.

⁽³⁾ Hydrant Meter projections were based on 2004 usages.

⁽⁴⁾ The contract between the City and MMWC will expire in 2008. The City does not plan to extend this contract.

⁽⁵⁾ Projected future use of recycled water is shown in Section 5.3 and estimates 560 AF/Yr for 2010 through 2030.

Unaccounted for water losses within the system for the past 13 years is shown in Table 2-5, and ranges from negative percentages to 15.5% in 1999. This variation in percentage is thought to be from accounting inconsistencies. Water losses within the system are assumed to be in the range of 8% annually. This percentage was used to project future unaccounted for water losses.

The City is projected to require 13,300 AF/Yr by 2010 with the completion of the proposed Airport Redevelopment Plan. The City's water service area is estimated to be built out by 2015, therefore 13,900 AF/Yr is projected for the service area for 2015, 2020, 2025 and 2030.

2.6.1 Marygold Mutual Water Company

In addition to providing water to customers in its service area, the City of Rialto wheels water to Marygold Mutual Water Company (MMWC) pursuant to the July 1st, 1993 agreement. Under this agreement MMWC is entitled up to 1,500 gpm (2,420 AF/Yr maximum). MMWC is one of the largest customers to the City and purchased 848 acre-feet of potable water from the City in 2004. Average supply to MMWC over the past five (5) years is 1,290 AF/Yr.

The contract with MMWC expires in 2008. The City will not be renewing this agreement and Table 2-17 reflects this reduction in future demand projections.

2.7 Demand Management Measures

(California Water Code Section 10631 (f))

The City is not a member of the California Urban Water Conservation Council and does not have a Best Management Practice Report to accompany this report. The following section identifies the water demand management measures currently being implemented or scheduled for implementation by the City.

Water in the City of Rialto is provided by both the City and the WVWD. Water conservation programs and incentives offered by the City will also benefit WVWD. In order to assess the effectiveness of these programs and their contribution to the reduction of consumption within the City's service area, the data would need to be separated based on which of the two (2) water suppliers is serving the customer.

Currently the City does not track that data and therefore does not have an accurate means of evaluating the effectiveness of these programs. Without this data, an estimate of the existing conservation savings on the water use within the system cannot be given. The City will make additional efforts to separate and monitor this information for future reference and analysis.

The savings that are being realized by the demand management measures currently implemented will not effect the ability to further reduce demand. A request by the City to further reduce consumption within the service area would be possible. People are generally receptive to reducing consumption if the need to conserve is stressed. This reduction however may only be for a short duration.

Several water conservation measures described below are being implemented by the City. The following data is based on information from City staff and from the City of Rialto municipal code, Title 12 Public Utilities, Chapter 12.20 Water Conservation Requirements and Chapter 12.50 Water Efficient Landscape Requirements (Ordinances 1234 and 1130). These codes describe the City's various water conservation measures presently being implemented.

(A) Water Survey Programs

The City does not perform water use surveys for their customers and has no plans to implement such a program.

(B) Residential Plumbing Retrofit

As a condition of continued water service, existing structures not so equipped, which require building permits to remodel or expand, shall be retrofitted with low-flow showers and faucets. Certification of compliance shall be supplied to the building division of the development services department.

As a condition of water service, all new structures shall be equipped with low-flow showers and faucets as per Title 24, Part 6, Article 1, T20-1406F of the California Administrative Code, in addition to the insulating of all hot water lines according to California Energy Commission Rules.

Minimal Kit Delivery Program - Plumbing devices which reduce water flow are a proven method to reduce water use, principally because, for operations such as showering and toilet flushing, comparable efficiency can be obtained with less water than is customarily used. This only works, however, if it is not overridden by long showers and double flushes.

The City utilizes a 'Water Conservation Kit' from G.E. Products, Santa Ana, consisting of a water bag for the toilet tank and restrictors for the shower heads. The kit comes with vegetable dye tablets to test for leakage into the bowl, and complete instructions. Over 1,000 kits have been distributed to new customers and all those requesting it.

A "Minimal Kit" consists of three (3) devices in a plastic bag with printed instructions on the proper installation or use. The devices include two (2) shower flow restrictor rings, an inflatable toilet tank displacement bag and two (2) dye tablets for testing for toilet tank leakage. These are available to all who visit the Department of Public Works Office at the City of Rialto Civic Center or the City Yard. They are provided to all builders of new residences within the City.

The dye tablets reveal leaking ballcocks and flapper valves in toilet tanks. These leaks have been estimated to waste about 47 gallons per leaking toilet per day, and in one study 20% of the toilets tested were found to leak. Unfortunately, only about 20% of tablets dispensed are used. Of these, it is assumed that only 50% of the leaks discovered are repaired in voluntary programs. Thus, the measure can be expected to show a 2% effectiveness and resultant savings are relatively low.

Shower flow restrictor rings reduce the rate of water flowing from a shower by about 1.3 gallons per minute (0.4 gpm to 2.1 gpm), however, the duration of a typical shower increases. Overall water use in a shower in a typical household is about 28 gallons per day (gpd), and a restrictor will reduce that figure to about 21.5 gpd. The acceptance and installation by the public on a voluntary basis, where the customer installs the ring, is about 15%. The resulting reduction in shower flow water is, therefore, $6.5/28 \times 0.15 = 3.5\%$. With shower water, there are significant energy savings (about 0.8 MBTU/yr/shower).

A toilet tank displacement dam is a bag made of durable plastic which holds about one (1) gallon of water and reduces the amount of water in each flush by that amount. On a voluntary basis, about 30% of customers receiving bags can actually be expected to install them. In those toilets, about 6 gallons per day per toilet are saved, resulting in about a 6% reduction overall.

(C) System Water Audits, Leak Detection and Repair

The City Department of Public Works (DPW) presently carries out a system-wide audit each month to determine unauthorized and unaccounted for water losses. All system meters are read and tabulated for water production and sales, and estimates are made of authorized unaccounted for water, such as: main flushing, construction uses, street cleaning, main breaks, and leaks. The remaining water use is the unauthorized unaccounted for use assumed to be from leaks, seepage, evaporation, non-functioning meters, and billing errors.

City personnel investigate high water bills at the customer's request. It has been the City's experience that in most situations, the cause of the unusual water use is found easily and corrected and will consist of obvious malfunctions in plumbing fixtures such as toilets and sinks. This may indicate a need to better educate customers on the impact of seemingly small, but continuous leaks when they are occurring.

Valve Exercise Program - A valve exercising program can reduce water loss by identifying system valves in need of repair, or those which are improperly set. The City DPW mobilizes a two-man crew which is responsible for all valve activity within the distribution system. This crew operates system valves on a planned two-year cycle, when not reacting to requests for mainline or hydrant shutdown.

(D) Metering with Commodity Rates and Retrofit of Existing Connections

All new and existing customer water services within the City are metered. It has been adequately illustrated that the metering of water services is a sure method of reducing total water use.

Increasing Block Rates

Instead of giving discounts to heavy users, Rialto has a schedule of rates, which increases the unit of cost of water. This schedule encourages conservation by charging more as consumption rises. Customers are encouraged to use water wisely and install water conserving devices to avoid the higher unit charges for water as shown in Table 2-18.

2 18
Monthly Consumption Charges

Consumption	Per 100 Cubic Feet	Base Consumption	Perchlorate Consumption	Price Per 100 Cubic Feet
First	500	\$0.428	\$0.127	\$0.56
Next	2500	\$0.674	\$0.200	\$0.87
Next	3000	\$1.069	\$0.317	\$1.39
All Over	6000	\$1.315	\$0.389	\$1.70

⁽¹⁾ 100 Cubic Feet = 1 Unit of Water

Meter Calibration and Replacement Program - The City has a policy of calibrating and/or replacing all system water meters in the 5/8-inch x 3/4-inch to 1-inch sizes every 10-15 years. For larger meters, the current program is every five (5) years. Inoperative and inaccurate meters can contribute to an increased percentage of unaccounted for water. To be effective, a program should take into consideration the meter size, type, age, water pressure, and meter location. All water meters in the City are currently being replaced with either a turbine or disc-type design with direct reading totalizers.

(E) Large Landscape Conservation Program

Large water users, as determined by the City, are encouraged to submit a water conservation plan to the City's Director of Public Services office and to promote the implementation of the plan. The use of lawns shall be minimized in new commercial, hotel, condominium, and high-density housing and shall be subject to planning commission review and conditioning of projects. The use of native or water-conserving trees, shrubs, lawns, grass, ground cover, vines, and other plant species for landscape planting or replanting purposes is encouraged.

In January 1991 the City adopted Ordinance 1133, which added a new chapter (12.50) and section (17.44.020) to the Rialto Municipal Code pertaining to the establishment of water efficient landscape requirements. The City of Rialto realizing that the water available to the City is in limited supply and is subject to ever increasing demands passed this ordinance which requires new and rehabilitated developments to use low water using plants and to include the use of automatic irrigation systems and seasonal irrigation schedules thereby reducing landscape water requirements without a decline in landscape quality or quantity.

(F) High-Efficiency Washing Machine Rebate Program

The City does not currently offer rebates for high-efficiency washers.

(G) Public Information Programs

To promote voluntary conservation, the City has initiated a public awareness and education plan.

- Pamphlets and brochures are distributed stressing the reasonable utilization of resources and explain that the quality of life need not suffer from the use of conservation techniques. They can be obtained at the Public Utilities Office and are distributed throughout the community in locations such as libraries, banks and other civic-minded stores.
- The City provides each service customer with data on water use during the similar period from the previous year. Only water usage is shown and not the amount of the bill in order to avoid confusion where perhaps other billing procedures, not related to water usage, have resulted in a change in the bill amount. Customers will use the data to informally evaluate the results of their conservation efforts taking into consideration climatic difference, exact billing period length and any changes they have made to their

households which could affect water consumption.

- A yearly Consumer Confidence Report which illustrates the quality of water provided by the City is posted on the City's web site and is distributed to customers.
- The City of Rialto releases articles on water conservation to the local daily newspaper, the City newsletter and the media.
- Public service announcements, news stories and paid advertising will be used in a campaign to promote understanding and awareness of wasteful habits, water scarcity, available sources, system and treatment capacity and distribution.
- Local Water Conservation Advisory Committee - In the City of Rialto, the Rialto Utilities Commission, appointed by the City Council, acts as the Local Water Conservation Advisory Committee. Their present and on-going responsibility is to aid the City Council and City Water Division staff in setting water related policy. There are five (5) members of the committee appointed at large. They attend monthly meetings open to the public. The Public Utilities Superintendent and the Director of Public Services act as staff to the committee.

(H) School Educational Programs

The City participates in an elementary school public awareness program through the hazardous household waste division of the Rialto Airport. The program targets children in grades K through 5, and educates them on conservation in the home.

The City also participates in the annual Water Conservation Fair and at festivals in the park. At these events, water conservation literature, coloring books and pencils are distributed.

(I) Conservation Programs for Commercial, Industrial and Institutional Customers

Large water users are encouraged to submit a water conservation plan to the director of public services' office and to promote the implementation of the plan. They are also encouraged to implement water recycling and reuse processes.

(J) Wholesale Agency Programs

SBVMWD has a web site that has links to water conservation measures. One link is a guide on lawn watering which shows customers how to determine the output of their sprinklers and suggests irrigation duration. Other links provide helpful hints to conserving water and even a water trivia page.

(K) Conservation Pricing

The City encourages conservation through a tiered rate water pricing system. Resolution 5074, included in the Appendix, adopted on March 2, 2004, regulates the use of water and charges an increasing monthly fee per hundred cubic feet (HCF) used above a certain minimum. Therefore, all water used is paid for and there is a disincentive for high use.

(L) Water Conservation Coordinator

The City does not have a dedicated conservation coordinator. Water conservation projects and programs are performed by members of the City's staff.

(M) Water Waste Prohibition

The water conservation ordinance encourages water waste reduction and controls excessive water wastage from (1) landscaped runoff, (2) irrigation water, (3) malfunctioning equipment, and (4) water wash down. It mandates low-flush (1.5 gallon) toilets, low-flow showers and faucets for new construction and remodeling. The ordinance encourages xeriscape landscaping (the use of native and low-water demand vegetation) and requires separate water meters for apartment complexes with more than four (4) units, and all new non residential connections. The City has enacted an ordinance prohibiting runoff from industrial customers' field, roof, yard, driveway, or street from entering any public sewer.

(N) Residential Low Flush Toilet Program

As a condition of water service, all new structures shall be equipped with ultra low-flush toilets (1.5 gallons per flush max) as per Section 17921.3 of the California Health and Safety Code.

As a condition of continued water service, all remodeled or expanded existing structures, if not already equipped, shall be retrofitted with new toilets resulting in 1.5 gallon flushes. Certification of compliance shall be supplied to the building division of the development services department.

In 2002, the City initiated an ultra-low-flush toilet replacement program. Vouchers for ultra-low-flush toilets from Home Depot were distributed to residents of the City in exchange for their existing toilet (maximum 2 per household). The City invested \$50,000 in the program and estimates a 2% reduction in demand. As this program was available to all of the residences of Rialto, customers in WVWD's service area were also eligible for the program. The program was discontinued as the City obtained minimal savings.

The savings that is being realized by the demand management measures currently implemented will not effect the City's ability to further reduce demand. A request by the City to further reduce consumption within the service area would be possible. People are generally receptive to reducing consumption if the need to conserve is stressed. This reduction however may only be for a short duration.

2.8 Evaluation of Demand Management Measures Not Implemented (California Water Code Section 10631 (g))

Of the fourteen (14) Demand Management Measures discussed in Section 2.7 (A-N) the City is currently implementing twelve (12). The environmental, social, health, customer impact and technological factors of the two (2) measures not implemented are discussed below.

Water Survey Program - The overall goal of such a program is to motivate customers to use water more wisely and to participate in conservation programs. The program would bring to light methods to conserve water and reduce water bills.

- Environmental Impact is positive. Less water will be used.
- Social Impact is positive, as people are reminded of water conservation, and their 'water consciousness' will be raised.
- There are no adverse Health and Safety Impacts.
- Customers will have reduced water bills following the implementation of the response to the survey.
- There are no Technological Factors involved.
- The Cost to implement such a program would include mailers that would be sent to customers, the staffing time needed to send out the information and the time to evaluate and respond to the completed surveys.
- The Benefit to the City would be the reduced demand resulting in lower supply, O&M and treatment costs.

A Water Survey Program for single-family and multifamily residential customers as outlined by the Department of Water Resources would require the City to check for leaks, including toilets, faucets, and water meters at each customer's home. The City would also have to check flow rates of shower heads and toilets along with an inspection of the customer's irrigation system and timers. A review of the customer's irrigation schedule and measuring the landscape area would also be required. This information would then have to be analyzed and the customer would need to be provided an evaluation of their existing water consumption habits and water saving recommendations would need to be supplied.

The City is not staffed for such a program. This sort of program requires both office and field personnel to perform the survey, analyze the data and respond with survey results. The anticipated water savings gained by such a program would not cover the costs to implement it.

High-Efficiency Washing Machine Rebate Program - The City has not implemented a high-efficiency washing machine rebate program at this time.

- Environmental Impact is positive. Less water will be used.
- Social Impact is positive, as people are reminded of water conservation, and their 'water consciousness' will be raised.
- There are no adverse Health and Safety Impacts.
- Customers will have reduced water bills following the installation of a high-efficiency washing machine.
- There are no Technological Factors involved.
- The overall Benefit to such a program would be the conservation of potable water supplies within the City, the ability to divert this supply to other customers or making this supply available for sale.
- The Cost to implement such a program may include offerings and or incentives for installation of high-efficiency washing machines. This conservation measure's rebate level will be determined when this item is presented to the City for consideration.

2.9 Planned Water Supply Projects and Programs (California Water Code Section 10631 (h))

As several of Rialto's wells are out of service due to a perchlorate groundwater plume in the Rialto Basin and one (1) other is influenced by declining water levels during drought periods, the number one priority is to obtain a sufficient water supply. This can be done by either equipping the existing contaminated wells with well head treatment, purchasing additional water from SBVMWD or through the City of San Bernardino, drill new wells in the hope that they will not draw contaminated water or re-drill existing wells deeper in the Lytle Basin which won't be affected as much during droughts.

**Table 2-19
Future Water Supply Projects**

		Year	City Well #1	City Well #2	City Well #3		
					1	2	3
	R	2006	2,000	2,000	2,000	1,800	1,600
Drill New Well	North Riverside Basin	2008	2,000	2,000	2,000	1,800	1,600
R		2008	1,000	1,000	900	800	700
	Bunker Hill Basin	2016	2,000	2,000	2,000	2,000	2,000

The City plans to replace City Well #1 as this well was drilled in the 1920s and was not drilled with adequate depth for dry cycle periods when the groundwater levels drop by over 300 feet. The replacement of City Well #1 and the changes that have been made to City

Well #3 will enable the City to exercise its maximum extraction rights within the Lytle Basin.

The City Council of the City of Rialto and the Board of Directors of the Rialto Utility Authority voted in January, 2004, to file a lawsuit to recover the City's costs of responding to the perchlorate contamination of its primary water supply source and to compensate the City for the damage to the water resource. The City of Rialto plans to install well head treatment on perchlorate contaminated wells when sufficient funds for such a project are available.

San Bernardino Valley Municipal Water District

The City is considering purchasing additional water supplies from the SBVMWD, if a long-term agreement can be reached. SBVMWD is a member agency of the California State Water Project, which imports water from Northern California. SBVMWD imports State Project Water (SPW) to water agencies within their boundary, as well as artificially recharging the Bunker Hill groundwater basin.

The Bunker Hill Basin, being the major ground water basin in the upper Santa Ana River Basin, contains over 5.0 million acre-feet of water supply. SBVMWD's primary function is to plan and develop a long range water supply for water agencies within the upper Santa Ana River Basin and to act as the Watermaster for the ground water basins within its boundaries.

The State Water Project provides imported water to SBVMWD. In accordance with its contract with the Department of Water Resources (DWR), SBVMWD has a maximum allocation of 102,600 AF/Yr of SPW. The availability of SPW supplies for delivery through the California Aqueduct over the next 23 years is estimated according to the historical record of hydrologic conditions, existing system capabilities, and requests of the state water contractors.

On December 30, 1960, SBVMWD signed a contract with DWR for the delivery of water through the State Water Project. An additional contract was executed to cover SBVMWD's share of the costs of the Devil Canyon/Castaic power facilities. The contracts extend to 2035, and include a schedule of annual water allocations.

SBVMWD first took delivery of State Project Water in 1972. SBVMWD's contract with DWR requires annual payment of fixed transportation costs, Delta water charge, and revenue bond surcharge, based on entitlement and the variable transportation costs and off-aqueduct power facilities, based on actual water deliveries.

The Edmund G. Brown California Aqueduct is capable of transporting SBVMWD's full contract amount per year. In addition, SBVMWD has developed approximately \$70 million of regional facilities to transport both local and SPW.

The quantity of water available for export through the California Aqueduct can vary significantly from year to year. The amount of precipitation and runoff in the Sacramento and San Joaquin watersheds, system reservoir storage, regulatory requirements and contractor demands for SPW, impact the quantity of water available to SBVMWD. Prior to the execution of the Bay-Delta Accord in December 1994, significant uncertainties existed regarding how much of the water in the Sacramento San Joaquin Bay-Delta would be available for export and how much would be required to meet regulatory requirements for meeting water quality standards and sustaining endangered species. The Bay-Delta Accord and the subsequent CALFED process removed significant uncertainties associated with regulatory requirements thus providing a base for the DWR and the State Water Project contractors to estimate water supplies.

In December 2001, the SBVMWD contracted with Engineering Resources of Southern California, Inc., to complete the Service Area 5 Report for Supplemental Water Supply. This report has been adopted by the District, and analyzes the short term and long term supplemental water needs along the District's proposed Baseline Feeder Extension South and the South End Feeder. The areas served by these proposed facilities have been known as the District's Service Area 5. A portion of the recommendations of the report are currently under design.

The Service Area 5 Report for Supplemental Water Supply is a regional plan for conjunctive use/ contamination mitigation and high groundwater mitigation of the Bunker Hill Basin. It considers the alternatives for the proposed Baseline Feeder Extension South to move large amounts of potable water within the Bunker Hill Groundwater Basin Pressure Zone between the proposed 9th Street Feeder at Baseline and Meridian, and the proposed Central Feeder at Barton Road and Hunts Lane in San Bernardino. This 60-78 inch pipeline will be a regional transmission line that will be owned by SBVMWD and operated by the City of San Bernardino's Municipal Water Department.

Wells along this transmission line will extract water from the middle level of the basin, which is the main aquifer drawn from, and well head treatment will be provided to remove the VOC from this water supply through air stripping and or granulated activated carbon. This treatment is done on a regional basis so that all water quality will meet the Department of Health Services (DHS) requirements for potable water. This project, should be completed by the end of 2006. At that time, potable water will be available to the City of Rialto to augment the City's groundwater well supply.

The cost that will be charged per acre-foot for water from this project is still under review. It is estimated that treatment of the plume water supply will be \$70/acre-foot and the cost for recharge water will be \$145/acre-foot. Factoring in the cost to deliver the water at elevation 1370' msl, the cost could be in the range of \$240/acre-foot.

Lytle Basin

The City has funding available from the Association of Bay Area Government (ABAG) for the purpose of drilling a new supply well. Staff managers within ABAG have approved the use of funds for well drilling purposes. Studies to locate the new well are ongoing. A new well is expected to produce 2,000 AF/Yr (1,240 gpm) from the Lytle Basin (the Newmark-Muscoy plume now prevents the City from locating the well in the Bunker Hill Basin as originally intended).

County of San Bernardino

The County of San Bernardino is under a Regional Water Quality Control Board order to provide replacement water for Rialto Well #3 in response to the presence of perchlorate contamination. The plan is to replace half of the capacity with new wells drilled at the Rialto Airport and the other half with production from Rialto Well #3 after installation of ion exchange treatment technology is complete. This well should be placed back in service in the first quarter of 2006.

Recycled Water

The City is currently moving forward with the upgrade and installation of water mains along

Riverside Avenue north of Etiwanda Avenue to Easton Street that will be used to supply recycled water for landscape irrigation along the I-210 freeway corridor. The City has already completed construction and is operating a reclaimed water system along the I-10 freeway.

City of San Bernardino

The City of Rialto could construct additional wells in the Bunker Hill groundwater basin. These wells constructed and paid for by the City would be connected to the Baseline Feeder, and the water wheeled to Rialto through the City of San Bernardino. The Bunker Hill groundwater Basin is expected to make up for any shortfall in supply during extended drought periods. An agreement between the City of San Bernardino and the City of Rialto would need to be prepared.

2.10 Development of Desalinated Water (California Water Code Section 10631 (i))

The City is a considerable distance from the coast. There is no opportunity for development of desalinated or brackish water.

2.11 Current or Projected Supply - Wholesale (California Water Code Section 10631 (k))

The City receives water through the Baseline Feeder under a 20 year agreement with provisions to extend up to an additional 30 years on a cost proportionate basis with the SBVMWD. The agreement provides up to 2,500 AF/Yr of supplemental water from the Bunker Hill Basin to the City's existing supplies as shown in Table 2-20.

Table 2-20
Agency Demand Projections Provided to Wholesale Provider

Wholesaler	2010	2015	2020	2025	2030
San Bernardino Valley Municipal Water District (SBVMWD)	2,500	2,500	2,500	2,500	2,500

SECTION THREE

DETERMINATION OF DEMAND MANAGEMENT MEASURE IMPLEMENTATION

3.1 Evaluation of Water Demand Management Measures (California Water Code Section 10631.5)

Under normal conditions (Stage 1), the City implements the measures described in SECTION TWO, 2.7 Demand Management Measures including: metering of all users, distributing public information, school education, annual water audit, and those measures described in the City's Ordinance No. 1130, amending chapter 12.20 of the Rialto Municipal Code.

The City's water production and water purchases during the recent droughts had been sufficient to supply customer demands. The City has not had to implement Stages 2, 3 or 4 of Ordinance 1130 due to insufficient supply. This is largely due to the City's construction of adequate water production facilities to meet adverse conditions. By continuing this philosophy, the City will be able to meet future demands, except under some extreme conditions where they may be forced, for a temporary period of time, to exercise the mandatory provisions of the City's Water Conservation Ordinance.

The following is a list of the water demand management activities and the status of each.

- | | |
|---|-------------------|
| A) Water Survey Programs | - Not Implemented |
| B) Residential Plumbing Retrofit | - Implemented |
| C) System Water Audits, Leak Detection and Repair | - Implemented |
| D) Metering with Commodity Rates | - Implemented |
| Retrofit of Existing Connections | - Implemented |
| E) Large Landscape Conservation Program | - Implemented |
| F) High-Efficiency Washing Machine Rebate Program | - Not Implemented |
| G) Public Information Programs | - Implemented |
| H) School Educational Programs | - Implemented |
| I) Conservation Programs for Commercial Customers | - Implemented |
| J) Wholesale Agency Programs | - Implemented |
| K) Conservation Pricing | - Implemented |
| L) Water Conservation Coordinator | - Implemented |
| M) Water Waste Prohibition | - Implemented |
| N) Residential Low Flush Toilet Program | - Implemented |

SECTION FOUR

WATER SHORTAGE CONTINGENCY PLAN

4.0 General

The City of Rialto is situated in the San Bernardino Valley which is an arid desert region surrounded by mountains. The average rainfall in the Valley is approximately 16-inches per year with occasional droughts on an average seven (7) year cycle.

To offset the prolonged effects of a drought period, the City Council adopted Ordinance No. 1130 on December 18, 1990. The purpose of Ordinance No. 1130 is to provide water conservation measures in order to minimize the effect of a water shortage on the citizens of, and the economic well-being of the community. This Article adopts provisions that will significantly reduce the wasteful and inefficient consumption of water, thereby extending the available water resources required for the domestic, sanitation, and fire protection needs of the citizens of the community, while reducing the hardship on the City and the general public to the greatest extent possible.

The Ordinance outlines four (4) stages of action to be implemented during a water shortage and includes both voluntary and mandatory stages. The City had to implement Stage 2 of the ordinance for 6 months, in 2002, due to a water shortage caused by the contamination of the groundwater by the chemical perchlorate.

The Ordinance also outlines additional policies that were initiated by the City Council that will aid in the conservation of the finite water supply.

The priorities for the use of available water is to help protect the public health, safety and welfare and to help assure as adequate supply to meet the domestic, sanitation and fire protection needs within the service area.

4.1 Stages of Action (California Water Code Section 10632 (a))

In order to minimize the social and economic impact of water shortages, the City will manage water supplies prudently and plans to provide a supply during a severe or extended water shortage as nearly normal as possible.

As the water shortages become evident, the City will invoke the appropriate Stage. The four (4) stages of action to be undertaken by the City in response to water supply shortages are listed in Table 4-1. An outline of specific water supply conditions which are applicable to Stages 2, 3 and 4, and additional reductions are described in Table 4-2.

Table 4-1
Water Supply Shortage Stages and Conditions
Rationing Stages

Stage No.	Water Supply Conditions	% Shortage
Stage 1	Normal	Projected Demand
Stage 2	Water Alert	10% less than projected demand
Stage 3	Water Warning	15% less than projected demand
Stage 4	Water Emergency	20% to 50% less than projected demand

Stage 1 - Normal Conditions (12.20.021)

During times of normal supply, it is recommended that water conservation be practiced within the home or business and all restaurants are requested not to serve water to their customers unless specifically requested by the customer. It also recommends that watering with automatic sprinklers should be done between 11 pm and 8 am and that hand watering and nonautomatic sprinklers should be done between 6 pm and 9 am. Stage 1 also lists water uses considered non-essential to the public health, safety and welfare, and would be considered wasting of water and are therefore discouraged. These include the following;

- There shall be no hose washing of paved, concrete or other hard surface areas, that would allow the rinse water to run into a street, gutter or drain that would carry the water away from the immediate area.
- No water shall be used to clean, fill, operate or maintain levels in decorative fountains unless the water is part of a recycling system.
- The repair of leaking plumbing fixtures shall be repaired in a timely manner so as to not waste water.
- Washing of automobiles, trucks, trailer, boats and other mobile equipment is prohibited unless done with a bucket or hand held device equipped with an automatic shut off trigger nozzle. This does not apply to commercial car washes utilizing a recycling system.
- Water used which results in flooding or run-off should be prevented and controlled.
- The use of sprinklers for any type of irrigation during high winds is prohibited.

Table 4-2
Water Conservation Provisions of Stages 2, 3 and 4

Stage 2 Water Alert 12.20.022	Stage 3 Water Warning 12.20.023	Stage 4 Water Emergency 12.20.024
All policies and prohibitions listed in Sections 12.20.010 and 12.20.021.	All policies and prohibitions listed in Sections 12.20.010, 12.20.021 and 12.20.022.	All policies and prohibitions listed in Sections 12.20.010, 12.20.021, 12.20.022 and 12.20.023.
All customers are asked for a voluntary 10% reduction over last years consumption.	All customers are asked for a voluntary 20% reduction over last years consumption and 12.20.022.	All customers are asked for a voluntary 30% reduction over last years consumption and 12.20.022.
The City shall screen all new applications for water service installations and shall limit water use to that essential for construction and testing of landscape plumbing.	New water service shall be installed but water shall be used for essential construction and testing of landscape plumbing. The installation of new landscape is prohibited.	
Commercial nurseries shall water only between 11pm and 6am. Curtail all nonessential water use. Consumption shall be reduced to 75% of last years comparable consumption unless using reclaimed water.	Commercial nurseries shall water only between 11pm and 6am. Hand-held devices, drip irrigation. Limited to 50% of last years consumption unless using reclaimed water.	Same as Stage 3
All golf courses and large landscaped areas shall be irrigated between 11pm and 6am. Consumption shall be reduced to 75% of last years comparable consumption unless using reclaimed water.	All golf courses shall water only the greens and then only between 11 pm and 6 am. Consumption shall be reduced to 50% of last years comparable consumption unless using reclaimed water.	No lawn or landscape watering unless using reclaimed water.
All publicly owned lawns, landscape, parks, school grounds and freeways to be watered between 11pm and 6am. Consumption shall be	All other publicly owned lawns, landscape, parks and freeways to be watered on even numbered days from 11 pm to 6 am. Consumption	

Stage 2 Water Alert 12.20.022	Stage 3 Water Warning 12.20.023	Stage 4 Water Emergency 12.20.024
reduced to 75% of last years comparable consumption unless using reclaimed water	shall be reduced to 75% of last years comparable consumption unless using reclaimed water.	
	All residential lawn watering to be done on odd and even days corresponding to house number between 8pm to 6am.	
	All restaurants are prohibited from serving water to their customers except when specifically requested by the customer.	Water use limited to essential household, commercial, manufacturing or processing uses.
	School grounds to be watered only on odd numbered days. All watering between 11pm and 6am. Consumption shall be reduced to 60% of last years comparable consumption unless using reclaimed water.	
	Swimming pools, ornamental ponds, fountains and artificial lakes shall not to be filled or refilled.	
	Washing of automobiles, trucks, trailers, boats, airplanes is prohibited. The washing of the above shall be done only at a commercial car wash where recycled water is used.	No water shall be used for construction purposes unless they are using reclaimed water. All fire hydrant and construction meters to be locked off or removed.

4.2 Estimate of Minimum Supply for Next Three Years (California Water Code Section 10632 (b))

The City receives water supplies from groundwater from 5 basins, and surface water from Lytle Creek. Of these water sources, 93% of the City's supply comes from their groundwater wells, and purchased groundwater from the Bunker Hill basin through the Baseline Feeder and 7% comes from surface flows. Due to the fact that the majority of water supplied comes from the groundwater wells the reduction of this source would represent the worst situation for the City.

In order to estimate the worst case water supply available to the City for the next three years, you need to assess the current state of each of the groundwater basins, and the City's ability to utilize the supply. Levels in the Lytle Creek basin have risen substantially in the past year and will be slower to decline during the next three years, if a drought period were to commence.

The recent modifications made to City Well #3 will ensure greater supply from the basin. During the next three years the City is planning to re-drill City #1 in the Lytle Basin and drill two (2) new wells in the North Riverside Basin. The North Riverside and the Chino basins do not appear to be greatly affected during drought periods. In addition to these planned projects, the City has a contractual allotment from SBVMWD through the Baseline Feeder.

An estimate of the minimum water supply available during each of the next three (3) water years was made based on the above information and is shown in Table 4-3.

Table 4-3
Worst Case Water Supply Availability
Three-Year Estimated Minimum Water Supply (AF/Yr)

Source	Normal Supply Year	Year 1 (2006)	Year 2 (2007)	Year 3 (2008)
Lytle Creek Basin	4,000	3,400	3,400	3,000
North Riverside Basin	1,500	1,400	3,100	2,800
Rialto Basin	4,300	4,100	3,900	3,700
Bunker Hill Basin ⁽¹⁾	5,500	5,500	5,500	5,000
Chino Basin	1,600	1,500	1,400	1,300
Lytle Creek Surface Flow ⁽²⁾	1,300	1,100	900	700
TOTAL	18,200	17,000	18,200	16,500

⁽¹⁾ Includes water purchased through the Baseline Feeder.

⁽²⁾ Water treated at the Oliver P. Roemer Water Filtration Facility.

4.3 Catastrophic Supply Interruption Plan (California Water Code Section 10632 (c))

Extended multi-week supply shortages due to natural disasters or accidents which damage all water sources are unlikely. The City's 5 storage reservoirs hold 28 million gallons, which is sufficient treated water to meet the health and safety requirements of 50 gallons per day per capita for the 48,418 customers for 11 days. This assumes zero non-residential use. Under emergency power outages or a catastrophic earthquake conditions, the existing storage is expected to provide sufficient emergency water supplies.

The City is retrofitting key well sites to enable the City to bring in portable generators for use during a power outage. These generators are stored at a local vendor site that can be accessed 24 hours per day.

The City has various interconnections with adjacent water systems such as the Cities of Fontana, San Bernardino and the WVWD to assist, in the event of an emergency. There exists no formal agreement for the exchange of water between these water purveyors.

The City has completed a connection to Riverside Highland Water Company's water system, and can on an emergency basis, transfer 1,000 AF/Yr (619 gpm - based on 24 hours per day) into the City's system.

Water shortage disaster response has been coordinated with the County Office of Emergency Services and water shortage planning is now incorporated into the County Disaster Plan. The City and County Plans are coordinating the acquisition of standby generators, water purification supplies, emergency drinking water storage, and water trucks. Water storage, treatment and pumping facilities are inspected annually for earthquake safety.

4.4 Prohibitions, Penalties and Consumption Reduction Methods (California Water Code 10632 (d-f))

Consumption limits in the progressively restrictive stages are imposed on different uses. These are based on percentage reductions in water allotments, and restrictions on specific uses. The specific percentage reductions at each stage and for each user class are listed in Table 4-2 and include watering on even or odd numbered days, watering time frames and limitations on irrigation and construction water. The individual customer allotments will be based on the previous year's use.

Mandatory provisions to reduce water use during the different Stages of water shortage are also summarized in the table. Provisions of Ordinance No.1130 (December 18, 1990) was adopted pursuant to Sections 375 through 376 of the California Water Code. Any violation of this policy is a misdemeanor.

Violations - In addition to criminal prosecution available to the City as described above, violation of this Ordinance may result in the imposition of surcharges and restriction and/or termination of water service as set forth below:

- | | |
|-------------------------|--|
| First Violation | - written "warning" shall be issued for first offense during all stages. |
| Second Violation | - A surcharge of 100% during Stage 2, 150% during Stage 3 or 200% during Stage 4 of the current water billing cycle shall be added to that billing. |
| Third Violation | - Place a flow-restrictor in the customer's water supply line at the customer's expense or apply a surcharge of 150% during Stage 2, 200% during Stage 3 or 250% during Stage 4 of current water billing cycle to the bill. |
| Fourth Violation | - Terminate water service at customer's expense for a two-day period, or a surcharge of 200% during a Stage 2, 250% during a Stage 3 or 300% during a Stage 4, of the current water billing cycle shall be added to that billing for the fourth offense within a twelve-month period. Prior to the termination of water service, the City will provide a due-process hearing before the water conservation adjustment board. |

Surcharges, Additional Charges - Any surcharge assessed shall be in addition to the basic water rates and other charges of the City for the account and shall appear on and be payable with the billing statement for the period during which the violation occurred. Non-payment shall be subject to the same remedies available to the City as for non-payment of basic water rates.

In addition to any surcharge, a customer in violation shall be responsible for payment of the City's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting the service per the City's Schedule of Charges at that time in effect.

4.5 Analysis of Revenue Impacts on Reduced Sales During Shortages (California Water Code Section 10632 (g))

Revenues will be impacted when, reduced water sales during the various stages as set forth in the City's Water Shortage Contingency Plan, are initiated. In order to minimize the financial impact this would have on the City, the monthly fixed revenue needs to cover the majority of the fixed costs of the City's water system during such an event.

The fixed costs are incurred by the City regardless of how much or when it delivers water to the customer. These costs generally include administration, personnel, billing, testing, maintenance, meter maintenance, pipeline and facility replacements.

In January 2003 a Water Rate Study was performed for the City of Rialto to analyze their existing rate structure, and formulate changes that would allow the City to meet their fixed annual expenditures with fixed revenue. The City's rates for its monthly meter service charge, at the time, covered only a portion of the fixed costs that the City incurred.

The report recommended increasing the monthly meter service charge to overcome the revenue impact during a water shortage. In March 2004, the City passed Resolution 5074, which established new water rates, rules and regulations related to the City's water enterprise, repealing resolutions 3983, 3810, 3912 and 3927. The resolution increased the fixed monthly meter service charge for meters 3/4" through 4", which are the majority of meters within the system. The resolution also imposes a monthly perchlorate surcharge, based on meter size, to cover the costs incurred to treat the contaminated water. The fixed annual revenue from meter service charges has more than quadrupled since the resolution went into effect.

The main features of the water rate Resolution No. 5074 are, a monthly service charge which is a 'ready to serve charge', a consumption quantity charge which increases for larger blocks of usage, and a perchlorate surcharge. The increasing rate schedule is aimed at reducing the use of water by heavier users. In general, the City of Rialto's rate schedule per Resolution No. 5074 is comprehensive, conservation structured and reflects the policy of direct payment per services rendered.

As described in Table 4-2, a Stage 2, 3 and 4 water shortage calls for a reduction in water consumption, mandatory conservation measures and prohibited water uses. When a water shortage emergency is declared, the supply shortage will trigger the appropriate rationing stage and appropriate charges and penalties.

An analysis of the impact of rationing was performed on the revenues and expenditures of the City. During a Stage 2, 3 or 4 water supply shortage the reduction in consumption as shown in Table 4-4 will occur based on the voluntary and mandatory provisions of the plan.

Table 4-4
Estimated Annual Reduction of Water Consumption
During Water Stages (Stage 2, 3 and 4)
(per 100 cu.ft.)

	Water Consumption 2004 ⁽¹⁾ (per 100 Cu. Ft.)	Reduction	Stage 2 Estimated Water Conserved	Reduction	Stage 3 Estimated Water Conserved	Reduction	Stage 4 Estimated Water Conserved
Domestic/ Commercial	4,782,906	10%	478,291	15%	717,436	30%	1,434,872
Irrigation ⁽²⁾	243,567	75%	182,675	60%	146,140	100%	243,567
Total	5,026,473		660,966		863,576		1,678,439

⁽¹⁾ Based on Public Water System Statistics for 2004.

⁽²⁾ Irrigation does not include recycled water.

The projected reduction in consumption as tabulated in Table 4-4, calculates that the reduction of water usage on a voluntary and mandatory basis, and would result in a revenue reduction as seen in Table 4-5. This table shows the estimated reduction in revenue for a twelve (12) month period during a Stage 2, 3 and 4 water supply shortage. Reduced annual revenue from domestic/commercial and irrigation water sales is estimated to be \$850,000 during Stage 2, \$1,120,000 during Stage 3 and as high as \$2,000,000 during Stage 4 of a water supply shortage.

Table 4-5
Estimated Annual Revenue Reduction of Water Sales
During Water Stages (Stage 2, 3 and 4)

	Stage 2	Stage 3	Stage 4
Reduced Annual Water Sales	\$850,000	\$1,120,000	\$2,000,000

⁽¹⁾ Based on Commodity Rates adopted September 2, 2004 and percentage of tier usage as shown in the 2003 Water Rate Study, and includes reduction in domestic and irrigation sales.

The City has proposed measures to overcome those impacts, by increasing fixed revenue and by developing reserves. In order to mitigate the financial impacts of a water shortage, the City maintains an Operation and Maintenance Fund that currently is in excess of \$1 million dollars. They also have access to the City of Rialto General Fund which is in excess of \$12 million dollars.

General revenues collected through service charges, connection charges, penalties and interest are placed in the Operation and Maintenance Fund, and are used for the acquisition, construction, reconstruction, maintenance and operation of water or water works facilities. This fund can be used to stabilize water rates during periods of water shortage, or disasters affecting the water supply. It can also fund capital improvement, or recycled water projects.

The City has increased its fixed revenues to match its fixed expenses. A prolonged water shortage and the initiation of the water shortage contingency plan would result in lower variable production costs and an equal lowering of variable revenues.

4.6 Draft Ordinance and Use Monitoring Procedure (California Water Code Section 10632 (h-i))

The City Administrator or designee shall access available data, determine and declare which of the four (4) previously discussed stages describes the City's water supply and prepare a resolution instituting the new stage and present it at the next regular City council meeting for its approval. The general public shall be notified of the stage and the elements of appropriate conservation measures required by posting a notice in the lobby of the City's administrative office. The declaration of any stage beyond "Stage 1- Normal Condition" shall also be made public by publishing notices in newspapers of general circulation and mailing to each customer a listing of all the restrictions on water usage, this shall remain in effect until all restrictions are removed and the water supply reverts to Stage 1.

The declaration of any stage of water supply condition shall remain in effect until such time as another stage is declared.

SECTION FIVE

RECYCLED WATER PLAN

5.1 Coordination

All of the wastewater collection and treatment within the service area is handled by the City of Rialto. The City has a 12.0 mgd tertiary treatment plant with a current flow of 7.5 mgd. All of the City's treatment plant effluent meets Title 22 for recycled water usage in restricted irrigation. Reclaimed water not currently being used for irrigation is discharged into the Santa Ana River.

5.2 Wastewater Quantity, Quality and Current Uses (California Water Code Section 10633 (a-c))

The City has constructed a hydro-pneumatic booster station and approximately 7,000 feet of 10-inch diameter transmission water line to provide Caltrans with recycled water for irrigation of landscape for the I-10 Freeway from Pepper Avenue to Cherry Avenue. This is approximately 42,000 feet of landscape irrigation corridor within the right of way for the Caltrans I-10 Freeway. Caltrans has been using 1.0 mgd during the summer months and 0.5 mgd during the winter. Currently there are no other users of the recycled water.

Table 5-1
Recycled Water Uses - Actual (AF/Yr)

Type of Use	Treatment Level	2005
Irrigation - Caltrans I-10 Freeway	Title 22	850

5.3 Potential and Projected Use, Optimization Plan (California Water Code Section 10633 (d-g))

The City of Rialto, like other cities in the area, depends on groundwater for most of its supply. This water resource is impaired by perchlorate contamination. Recycled water is the most obvious alternative water supply available to the City.

The City prepared a Wastewater Master Plan that investigated recycled water systems as a way to supplement the City's water supply and reduce the need to purchase water. The plan analyzed the feasibility of converting a currently unused water main the extends several miles up Riverside Avenue and identified potential landscape irrigation customers.

The City then applied for grants from the State and Federal Governments. The State has tentatively approved Rialto's request for a Prop 50 grant for \$75,000 for this project and the City has also allocated \$75,000 for the project. The project will include the construction of recycled water lines that will tie into the unused waterline in Riverside Avenue. Recycled water will then be available to large landscape users as outlined in the Wastewater Master Plan such as the San Bernardino Park, the Convalescent Hospital, the Senior Center, a Base Ball Field and a Recreation Center.

The City is also investigating the use of package plants in the north end of the City that could supply recycled water to the I-210 freeway. Caltrans could use up to 1.0 mgd for landscape irrigation along this corridor. Completion of the above projects is scheduled for the end of 2008.

Table 5-2
Recycled Water Uses - Potential (AF/Yr)

Type of Use	Treatment Level	2010	2015	2020	2025	2030
Irrigation - Caltrans I-210 Freeway	Title 22	850	850	850	850	850
Large Irrigation Users - San Bernardino Park Convalescent Hospital Senior Center Base Ball Field Recreation Center	Title 22	560	560	560	560	560
Other - Mid Valley Landfill (Dust Control)	Title 22	130	130	130	130	130
Industrial - Robertson's Ready Mix (Sand and Gravel)	Title 22	500	500	500	500	500
Total		2,040	2,040	2,040	2,040	2,040

The Mid Valley Landfill and the Robertson's Ready Mix are currently being served by West Valley Water District's potable water system. If the City were able to extend non-potable water service to these customers WVWD would consider using this source and in so doing reduce the demand on their potable water system.

Table 5-3
Projected Future Use of Recycled Water in Service Area (AF/Yr)

Type of Use	2010	2015	2020	2025	2030
Irrigation - Caltrans I-10 Freeway	850	850	850	850	850
Irrigation - Caltrans I-210 Freeway	850	850	850	850	850
Large Irrigation Users - San Bernardino Park Convalescent Hospital Senior Center Base Ball Field Recreation Center	560	560	560	560	560
Total	2,260	2,260	2,260	2,260	2,260

The combination of the above projects is estimated to consume up to 2.5 mgd irrigation demand during summer months that can be offset from the potable water demand. Annual consumption as shown above could increase to 2,260 AF/Yr by the year 2010.

There is also the question of consumptive use. All the water served to the water system is not lost. 'Sewered' water reaches the City wastewater treatment plant and the Santa Ana River Basin. Septic tank effluent is recharged directly to the local groundwater and some portion of outside applied irrigation water is also recharged. To conserve these waters will only save treatment and distribution costs, for they are utilized again on a regional basis.

The City has a long term reclaimed water supply of 16 mgd, or 18,000 acre-feet per year. The existing City tertiary treated wastewater flows are approximately 7.5 mgd, or 9,000 acre-feet per year. The City currently discharges all of its flows to the Santa Ana River, but is under no obligation to continue to discharge all or even part of its flows to the Santa Ana River.

The projections from the City's 2003 Urban Water Management Plan for reclaimed water use in the year 2005 consisted of supply to the Caltrans I-10 freeway. There have been no additional reclaimed water uses since that time.

5.3.1 Financial Incentives to Promote the Use of Recycled Water

The City has adopted an ordinance that provides the framework under which the City will deliver reclaimed water to its customers. The ordinance specifies the rate of water sales to be 90% of current potable water rates. At this time the City has imposed a perchlorate surcharge to potable water users. This surcharge will not apply to users of reclaimed water. Customers can therefore expect an elimination of the perchlorate surcharge and an additional 10% reduction in their current water cost after delivery of reclaimed water begins.

This ordinance will compel potable water customers to switch over to recycled water for irrigation and industrial use if recycled water is available to them and feasible for their application. Any customer who has access to recycled water, whose application is deemed feasible and who refuses to utilize recycled water will pay a 50% surcharge penalty for their continued use of potable water. New development connection fees for recycled water are the same as those for potable water. Existing potable water users, who simply switch to recycled water use, would be exempt from reclaimed water connection fees.

SECTION SIX

WATER QUALITY IMPACTS ON RELIABILITY

6.0 Water Quality (California Water Code Section 10634)

Water provided to the City's water system comes from both surface water from Lytle Creek which is treated at the Oliver P. Roemer Water Filtration Facility and from groundwater, whether it be City owned groundwater wells or purchased water through the Baseline Feeder from SBVMWD. The reliability of the quality of both sources of water has in the past been an issue of concern for the City. High turbidity in the surface flows and chemical pollutants in the groundwater have limited the City's ability to rely on these sources. Future measures as discussed below will ensure the reliability of these sources in the future. All water provided by the City, meets or exceeds all Federal and State Requirements.

Surface Water

Geologic hazards within Lytle Creek have the potential to disrupt the water supply system by restricting the flow and/or introducing large quantities of suspended solids to the runoff, thereby increasing turbidity levels. The Oliver P. Roemer Water Filtration Facility was not equipped to handle such high turbidity and would shut down during these flows. WVWD has expanded the treatment process capability of the Facility to achieve both turbidity removal and total organic carbon (TOC) reduction by providing pretreatment facilities thus improving reliability of this water source in the future.

Groundwater

Wells in four (4) of the five (5) groundwater basins that the City receives supply, have tested positive for the chemical TCE or perchlorate. These wells have either been taken out of service or they have been equipped with well head treatment to remove the contamination. The fifth basin (Lytle Basin) is of good quality and is not expected to have any water quality issues in the future.

Bunker Hill Basin (Purchased Water Supply)

The City receives Bunker Hill Basin groundwater from SBVMWD through the Baseline Feeder. Supplies delivered through the Baseline Feeder to the City started in November 1990 and add approximately 2,500 AF/Yr of supplemental water to the City's existing supplies. The Bunker Hill Basin has areas of contamination. The City of San Bernardino, in cooperation with the United States Environmental Protection Agency, has a Proposition 65 clean-up site in the Bunker Hill Basin to remove these pollutants.

Lytle Basin

The Lytle Basin has no history of contamination, and is not expected to have contamination in the future.

Rialto Basin

Military, manufacturing and industrial operations within the area over the years, resulted in the release of perchlorate to the subsurface in two (2) separate areas. This has resulted in the contamination of groundwater that flows down gradient.

Perchlorate is a chemical used in the manufacture of rocket fuels and propellants, explosives, munitions, flares, ordnance and pyrotechnic products such as fireworks. Perchlorate is highly soluble in water and is believed to have potential effects on human health.

The Rialto City council decided in 2003 that no water contaminated with perchlorate would be acceptable in the City's potable water system and the use of any wells in which perchlorate had been detected should be discontinued. Due to the major impact that the removal of these wells would have on the City's water supply, the City installed wellhead treatment to remove perchlorate from Chino Wells #1 and #2 in September 2003.

The City Council of the City of Rialto and the Board of Directors of the Rialto Utility Authority voted in January, 2004, to file a lawsuit to recover the City's costs of responding to the perchlorate contamination of its primary water supply source and to compensate the City for the damage to the water resource.

After working closely for almost two (2) years with the Regional Water Quality Control Board, Santa Ana Region, the State Department of Toxic Substances Control and the United States Environmental Protection Agency to bring together the responsible parties to formulate a voluntary plan to restore the local groundwater basin to its previous pristine water quality, the City determined that filing of an action while continuing to work with the regulatory agencies would result in the swiftest clean up.

The lawsuit names more than 40 former and current land owners, companies, government agencies, and individuals, including the U.S. Department of Defense and the County of San Bernardino. Each of the parties named is believed to be responsible for the release of perchlorate into the City's drinking water supply at some time over the last 50 years.

These polluters, and possibly others, have created a plume of perchlorate beneath the City of Rialto, which is believed to be over six (6) miles long. The existence of perchlorate in groundwater has forced the City to close many of their drinking water wells. The contamination, coupled with the local drought, has severely impacted the amount of water available to the City, which has had to lease or purchase replacement water from others.

Perchlorate contamination has affected five (5) of the City's wells in the Rialto Basin. Rialto #3 has all been equipped with well head treatment and is awaiting clearance from the Department of Health Services. The four (4) remaining contaminated wells (Rialto 1, 2, 4 and 6) are not being utilized until well head treatment is installed. The City plans to preserve the reliability of its drinking water supplies in the future by installing well head treatment on wells that have tested positive for perchlorate.

Chino and North Riverside Basins

Chino #1 in the Chino Basin (No Man's Land), and Chino #2 in the North Riverside Basin

have all been equipped with well head treatment.

SECTION SEVEN

WATER SERVICE RELIABILITY

7.1 Projected Normal Water Year Supply and Demand (California Water Code Section 10635 (a))

An assessment on the reliability to provide water service to the customers within the City's service area during normal, dry, and multiple dry water years was performed and is reflected in the following tables. The assessment compares the total water supply sources available to the City with the total projected water use over the next 25 years, in five (5) year increments. Table 7-1 lists the projected supply available to the City during a normal water year.

**Table 7-1
Projected Normal Water Year Supply and Demand Comparison
Period 2010-2030 (AF/Yr)**

	2010	2015	2020	2025	2030
Lytle Creek Basin	5,600	5,600	5,600	5,600	5,600
North Riverside Basin	4,500	4,500	4,000 ⁽¹⁾	4,000	4,000
Rialto Basin	2,766	2,766	4,366 ⁽²⁾	4,366	4,366
Bunker Hill Basin	6,000	6,000	8,000	8,000	8,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytle Creek Surface Water	1,300	1,300	1,300	1,300	1,300
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
SUPPLY	24,366	24,366	27,466	27,466	27,466
DEMAND	13,300	13,900	13,900	13,900	13,900
SURPLUS	11,066	10,466	13,566	13,566	13,566

⁽¹⁾ The City's production in the North Riverside basin is projected to be 4,000 AF/yr once the City of Riverside utilizes their extraction rights.

⁽²⁾ The agreement to lease 1,600 AF/yr of the City's Rialto Basin water rights during drought conditions with the County of San Bernardino will terminate in the year 2020, allowing the City to utilize their full 4,366 AF/Yr water right in the basin.

During a normal water year, the planned water sources for the City are sufficient to supply the anticipated demand. The City plans to develop adequate water supplies to meet demands during both normal and drought conditions.

The normal water year supply is based on an average water supply year, and the annual production range as shown in Table 2-12, contractual allotments, historical data and future supply projects.

Information used in Table 2-12 was obtained from the City's 2000 Water Master Plan and from historical use data provided by the City.

The future demands which include residential, commercial, agricultural, and unaccounted for water are based on the demand projections from Table 2-17. The City's service area is projected to be built out by the year 2015.

The agreement to lease 1,600 AF/yr of the City's Rialto Basin water rights during drought conditions

with the County of San Bernardino will terminate in the year 2020, allowing the City to utilize their full 4,366 AF/Yr water right in the basin.

The exact date of the implementation of future supply projects is not known at this time, but has been added to these tables to include their supply capacity for future demands. The projected supply includes existing facilities, re-drilling an existing well in the Lytle Basin, well head treatment on contaminated wells, the contracted allotment from SBVMWD through the Baseline Feeder and future water supply projects as discussed in Section 2.9.

7.2 Projected Single Dry Year Supply and Demand Comparison

Water use patterns during a single dry year will differ from those in a normal water year, as landscape irrigation demands will increase. There are no substantial agricultural demands within the City that will affect demand. Due to the size of the groundwater basins utilized by the City, a single dry water year will not affect supply from this source. Surface flow, which is directly affected by annual precipitation will decrease as is shown in Table 7-2.

Table 7-2
Projected Single Dry Year Supply and Demand Comparison
Period 2010-2030 (AF/Yr)

	2010	2015	2020	2025	2030
Lytle Creek Basin	5,500	5,500	5,500	5,500	5,500
North Riverside Basin	4,500	4,500	4,000	4,000	4,000
Rialto Basin	2,766	2,766	4,366	4,366	4,366
Bunker Hill Basin	6,000	6,000	8,000	8,000	8,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytle Creek Surface Water	1,000	1,000	1,000	1,000	1,000
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
SUPPLY	23,966	23,966	27,066	27,066	27,066
DEMAND	13,300	13,900	13,900	13,900	13,900
SURPLUS	10,666	10,066	13,166	13,166	13,166

The demand as shown in Table 7-2 reflects consumption without rationing. Existing facilities, new wells, well head treatment, additional purchased water supplies and the refurbishing of old wells is

projected to provide sufficient supply to meet demand through the year 2030, during a single dry water year.

7.3 Projected Multiple Dry Year Supply and Demand Comparison for 2006-2010

The projected supply shown in Table 7-3 reflects the production capacity of the existing wells and the additional capacity that will be produced from the Rialto #3 well once it is placed back into service. The supply also includes the projected production capacity of the wells planned for construction in the North Riverside in 2006 and 2008.

The demand is based on existing usage, the proposed airport redevelopment plan, estimated system growth, the reduction in demand from MMWC, the termination of the water service agreement with MMWC in 2008 and the increased usage of reclaimed water by the City.

The projected supply and demand in the following four (4) tables is based on normal usage and does not take into account rationing implemented during a Stage 2, 3 or 4 water shortage. The City has initiated Stage 2 of their rationing plan only once, and this was due to perchlorate contamination and not a multiple dry year occurrence. The supply assumes all proposed sources will be available but in reduced quantities. In the event water supplies decrease due to declining water tables, low surface flows or water quality, the City may initiate the appropriate rationing stage. Rationing of the available supplies will help to alleviate the strain placed upon the system.

Table 7-3
Projected Supply and Demand Comparison
During Multiple Dry Years 2006-2010 (AF/Yr)

	2006	2007	2008	2009	2010
Lytle Creek Basin	3,700	3,500	4,600 ⁽¹⁾	4,200	3,800
North Riverside Basin	1,300	3,100 ⁽²⁾	2,800	4,200 ⁽²⁾	3,900
Rialto Basin	2,766	2,400	2,100	1,700	1,382
Bunker Hill Basin	4,000	4,000	6,000 ⁽³⁾	6,000	6,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytle Creek Surface Water ⁽⁴⁾	1,300	1,300	1,100	1,200	1,000
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
Projected Supply	17,266	18,500	20,800	21,500	20,282
% of Projected Normal	-----	-----	-----	-----	83%
Projected Demand	13,950	13,790	13,630	13,460	13,300
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	3,316	4,710	7,170	8,040	6,982
Surplus as a %	19%	25%	34%	37%	34%

⁽¹⁾ Re-drill City #1 in 2008.

⁽²⁾ Addition of wells in the North Riverside Basin.

⁽³⁾ The City has the option of purchasing additional Bunker Hill groundwater through the City of San Bernardino if a contract for such an agreement where prepared.

⁽⁴⁾ Lytle Creek surface flow as seen during the drought of 2000 through 2004.

In the year 2010 during a multiple dry year cycle, the City is projected to have 83% of its projected supply if they implement the water supply projects as outlined in Table 2-19.

**Table 7-4
Projected Supply and Demand Comparison
During Multiple Dry Years 2011-2015 (AF/Yr)**

	2011	2012	2013	2014	2015
Lytle Creek Basin	5,600	5,150	4,700	4,250	3,800
North Riverside Basin	4,500	4,200	3,900	3,600	3,300
Rialto Basin	2,766	2,400	2,100	1,700	1,382
Bunker Hill Basin	6,000	6,000	6,000	6,000	6,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytle Creek Surface Water ⁽¹⁾	1,300	1,300	1,100	1,200	1,000
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
Projected Supply	24,366	23,250	22,000	20,950	19,682
% of Projected Normal	-----	-----	-----	-----	81%
Projected Demand	13,420	13,540	13,660	13,780	13,900
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	10,946	9,710	8,340	7,170	5,782
Surplus as a %	45%	42%	38%	34%	29%

⁽¹⁾ Lytle Creek surface flow as seen during the drought of 2000 through 2004.

The projected demand for 2011 through 2015 is based on normal usage and does not take into account rationing implemented during a water shortage. The supply assumes all proposed sources will be available but in reduced quantities. In the event water supplies decrease beyond predicted levels, the City may initiate the appropriate rationing stage.

Table 7-5
Projected Supply and Demand Comparison
During Multiple Dry Years 2016-2020 (AF/Yr)

	2016	2017	2018	2019	2020
Lytile Creek Basin	5,600	5,150	4,700	4,250	3,800
North Riverside Basin	4,500	4,200	3,900	3,600	3,300
Rialto Basin	2,766	2,300	1,800	2,650 ⁽¹⁾	2,100
Bunker Hill Basin ⁽²⁾	8,000	7,500	7,000	6,500	6,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytile Creek Surface Water ⁽³⁾	1,300	1,300	1,100	1,200	1,000
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
Projected Supply	26,366	24,650	22,700	22,400	20,400
% of Projected Normal	-----	-----	-----	-----	74%
Projected Demand	13,900	13,900	13,900	13,900	13,900
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	12,466	10,750	8,800	8,500	6,500
Surplus as a %	47%	44%	39%	38%	32%

⁽¹⁾ The lease of water supply to the County of San Bernardino will cease and the City will be able to utilize their full water rights in the basin.

⁽²⁾ The City is anticipated to contract for additional supply through the Baseline Feeder. Production in the Bunker Hill basin will decline in future years when pumping from other agencies will increase.

⁽³⁾ Lytle Creek surface flow as seen during the drought of 2000 through 2004.

In 2018 the agreement to lease 1,600 AF/Yr from the Rialto Basin with the County of San Bernardino will end. Production capacity for 2019 in the Rialto Basin reflects the additional supply the City will have.

In 2016 it is projected that the City will contract for additional supply through the City of San Bernardino through the Baseline Feeder. Supply will decline each year during a multiple dry year cycle due to the number of agencies anticipated to be utilizing the Bunker Hill groundwater basin.

Table 7-6
Projected Supply and Demand Comparison
During Multiple Dry Years 2021-2025 (AF/Yr)

	2021	2022	2023	2024	2025
Lytle Creek Basin	5,600	5,150	4,700	4,250	3,800
North Riverside Basin	4,000	3,700	3,500	3,200	3,000
Rialto Basin	4,366	3,750	3,200	2,650	2,100
Bunker Hill Basin	8,000	7,500	7,000	6,500	6,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytle Creek Surface Water ⁽¹⁾	1,300	1,300	1,100	1,200	1,000
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
Projected Supply	27,466	25,600	23,700	22,000	20,100
% of Projected Normal	-----	-----	-----	-----	73%
Projected Demand	13,900	13,900	13,900	13,900	13,900
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	13,566	11,700	9,800	8,100	6,200
Surplus as a %	49%	46%	41%	37%	31%

⁽¹⁾ Lytle Creek surface flow as seen during the drought of 2000 through 2004.

The schedule for the City's future water supply projects is estimated and can change should unforeseen events occur that affect the projected supply availability. The City has several water sources available to it and can tailor future supply projects to meet their needs.

Table 7-7
Projected Supply and Demand Comparison
During Multiple Dry Years 2026-2030 (AF/Yr)

	2026	2027	2028	2029	2030
Lytle Creek Basin	5,600	5,150	4,700	4,250	3,800
North Riverside Basin	4,000	3,700	3,500	3,200	3,000
Rialto Basin	4,366	3,750	3,200	2,650	2,100
Bunker Hill Basin	8,000	7,500	7,000	6,500	6,000
Chino Basin	1,700	1,700	1,700	1,700	1,700
Lytle Creek Surface Water ⁽¹⁾	1,300	1,300	1,100	1,200	1,000
SBVMWD / Baseline Feeder	2,500	2,500	2,500	2,500	2,500
Projected Supply	27,466	25,600	23,700	22,000	20,100
% of Projected Normal	-----	-----	-----	-----	73%
Projected Demand	13,900	13,900	13,900	13,900	13,900
% of Projected Normal	100%	100%	100%	100%	100%
Surplus	13,566	11,700	9,800	8,100	6,200
Surplus as a %	49%	46%	41%	37%	31%

⁽¹⁾ Lytle Creek surface flow as seen during the drought of 2000 through 2004.

In order to minimize the social and economic impact of water shortages, the City will manage its water supplies prudently. Existing and future supply projects are designed to provide a supply during a severe or extended water shortage as nearly normal as possible. The City is expected to be able to provide sufficient supply to meet its long term demands during normal, single dry, or multiple dry water years.

SECTION EIGHT
ADOPTION AND IMPLEMENTATION OF THE
URBAN WATER MANAGEMENT PLAN